INDUSTRIAL DESIGN

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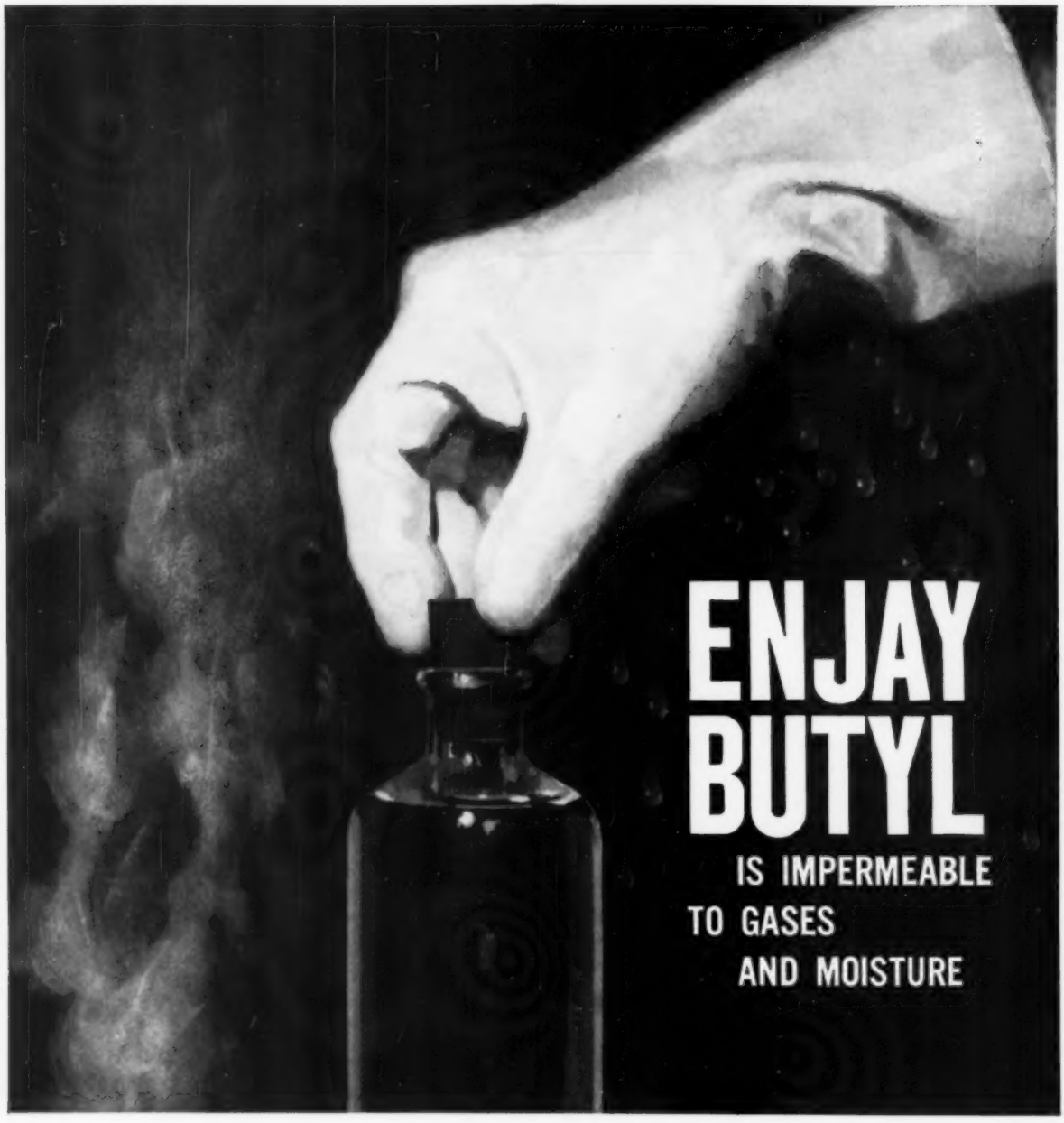

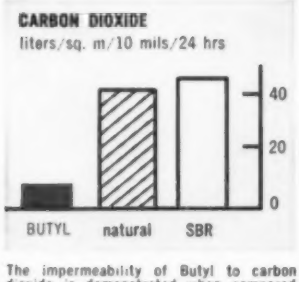

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OCTOBER, 1959 VOLUME 6 NUMBER

10

INDUSTRIAL DESIGN

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A monthly review of form and technique in designing for industry. Published for active industrial designers and the executives throughout industry who are concerned with product planning, design, development and marketing.

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Coming

IN NOVEMBER—RCA's new computer, street furniture, sporting goods innovations.

IN DECEMBER—Sixth Annual Design Review.

COVER: Because anyone looking for a designer or a job occasionally feels like an abstraction, our cover this month does its best to interpret this feeling; it also announces our major feature on careers.

FRONTISPIECE: While searching out the meaning of basic materials, Associate Art Director Mei Lou Foo found some of the answers in her photograph of the stainless steel panels at the entryway to New York's Museum of Modern Art.

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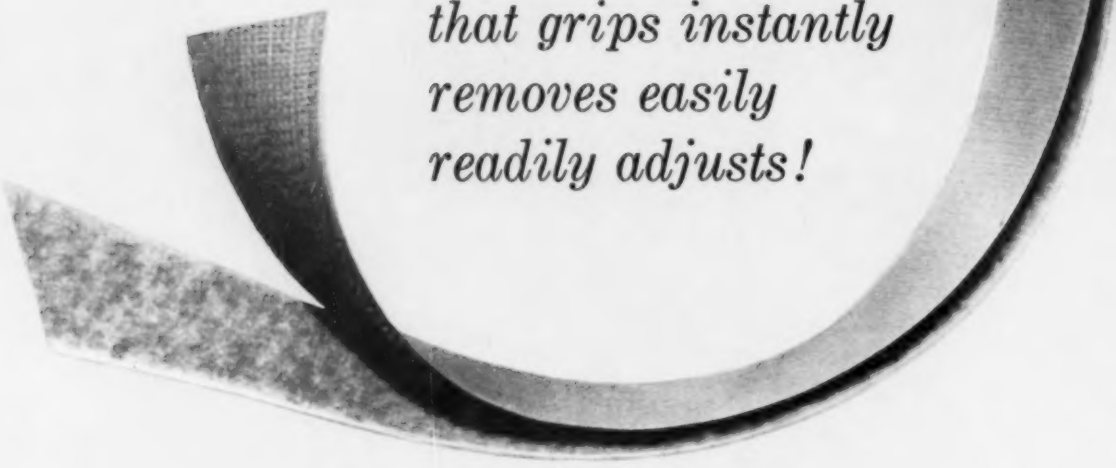

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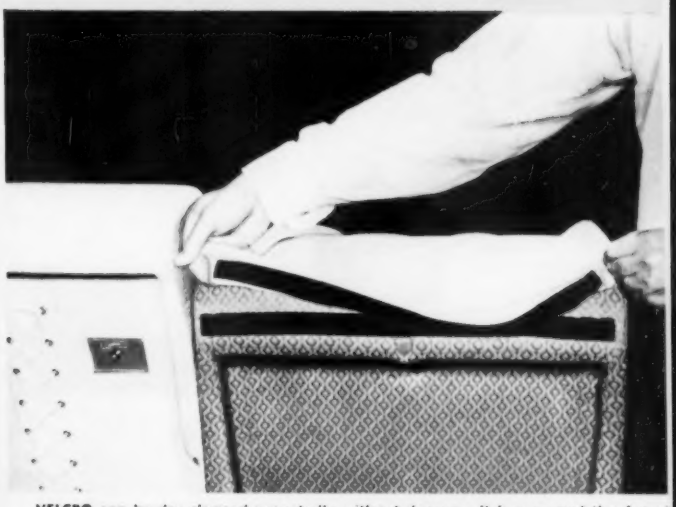
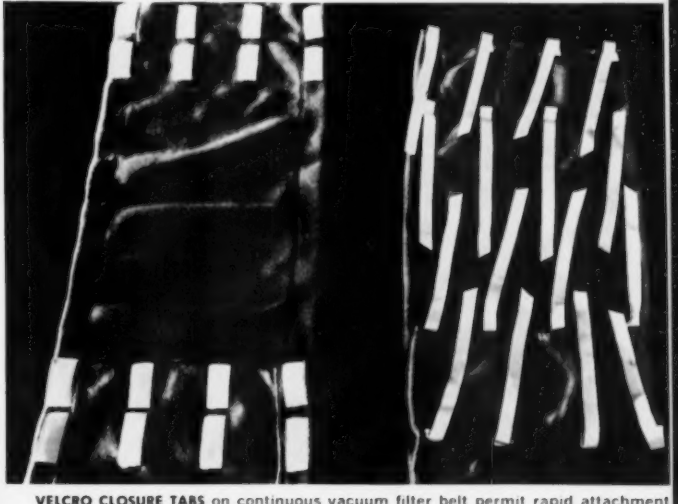


VELCRO can be dry cleaned repeatedly without damage. It has earned the Ameri can Laundry Institute and Good Housekeeping seals. Here, Velcro is used i upholstery coverings of latest passenger aircraft.



VELCRO CLOSURE TABS on continuous vacuum filter belt permit rapid attachment removal or adjustment. Old model at right depended on tapes and ordinary slow hand tying.

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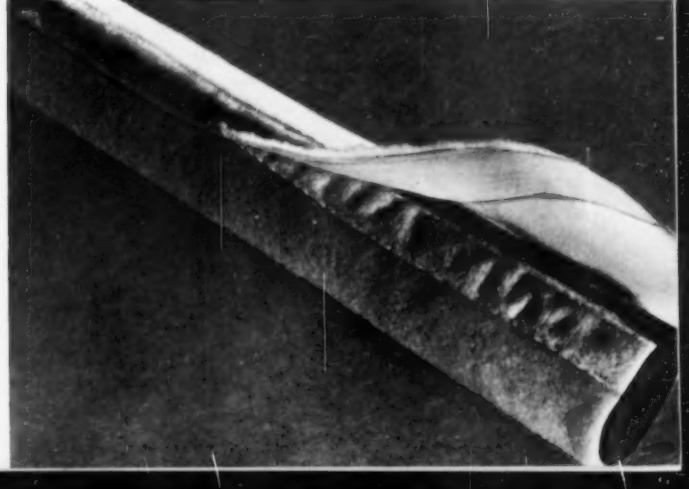

in this issue...

Menghi

Isaacs

Wilson

Leon and Polly Miller

Stevens and Chase

Moss

Constantine

William Moss, whose contribution to outdoor living is examined on page 60, is a painter (trained at University of Michigan, Layton School of Art, Cranbrook Academy) who became an industrial designer in the process of developing improved paraphernalia for a life-long leisure-time activity: camping. He heads the small (3-man) but prolific design firm of C. William Moss Associates, is consultant designer to the Ford Motor Company's American Road Show.

Lawrence H. Wilson of Lawrence H. Wilson Associates, the design firm whose project for the U. S. Post Office is reviewed on page 84, first opened his own design office in 1932, later headed Norge design department, and still later joined Detroit design consultant George W. Walker. He became president of the firm in 1955, when Walker left to join Ford Motor as vice-president in charge of styling.

Mildred Constantine, associate curator of graphic design in the Museum of Modern Art's department of architecture and design, assembled the packages for the museum's current show (page 76) using the criteria of her professional training (NYU Fine Arts Graduate Center, University of Mexico) plus those of practical experience. In private life she is Mrs. Ralph Bettelheim, the mother of two teenage daughters, and a well-informed critic of packaging in the supermarkets.

Kenneth Isaacs, who analyses the structures of Buckminster Fuller displayed in the Museum of Modern Art garden (page 82) is himself the inventor of a provocative structural concept. His Living Structure, developed under the tutelage of Sibyl Moholy Nagy and Roy Gussow at Bradley University, and further refined at Cranbrook, assembles all the interior appointments for living into an organic cellular unit which is spatially non-dependent upon the walls which shelter it.

Philip Stevens and **David Chase,** designers of the new Smith-Corona portable (page 94) have only been a design team for three years, but had the partnership in mind long before it became a fact. Both are graduates of Syracuse University (Stevens in 1951, Chase in 1954), both majored in industrial design. Stevens went on to Convair, and then to Bernard Soep Associates, Boston; Chase worked for Worthington Corporation.

Roberto Menghi, designer of the Oscar-winning gasline container for Pirelli (page 66), heads a six-man office in Milan that, up until three years ago, concentrated its activities in architecture (schools, public buildings, private dwellings). Menghi's interest in plastics led him into industrial design; he is a charter member of A.D.I. (Associazone Disegno Industriale).

Polly Miller accompanied her husband, Cleveland industrial designer Leon Gordon Miller, to the ICSID meeting in Stockholm and reports on it (page 68) as an interested party and as an ex-professional journalist. She is a graduate of Columbia University School of Journalism, once worked on the now-defunct Brooklyn Eagle. Her main activities now are two small sons, 4 and 7, and—when time permits—photography (exhibited in the Cleveland Museum).

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CLIPS AND QUOTES

Esquire
THE MAGAZINE FOR MEN

C. Wright Mills, *"The Intellectuals' Last Chance," Esquire, October, 1959.*

"In the Overdeveloped Society, the standard of living dominates the styles of life; its inhabitants are possessed, as it were, by its industrial and commercial apparatus; collectively, by the maintenance of conscious consumption; individually, by the frenzied pursuit and maintenance of commodities. Around these fetishes, life, labor and leisure are increasingly organized. Focussed upon these, the struggle for status supplements the struggle for survival; a panic for status replaces the proddings for poverty.

In underdeveloped countries, industrialization, however harsh, may be seen as man conquering nature and so freeing himself from want. But in the overdeveloped nation, as industrialization proceeds, the economic emphasis moves from production to merchandising, and the economic system which makes a fetish of efficiency becomes highly inefficient and systematically wasteful.

Society has become a great salesroom—and a network of rackets: the gimmick of success becomes the yearly change of model, as in the mass-society fashion becomes universal."

Alan Harrington, *"The Self-deceivers," Esquire, September 1959.*

"There is, as Socrates reminds us, a curious ignorance or innocence among many hired talkers, thinkers, and image merchants. This naïveté arises out of a number of extravagant assumptions, the kind that can only beguile clever men. One is that they think words can do anything—or, if not words, photographs or adroit picture layouts. Secondly, they think that truths are utterly malleable, like crazy putty that can be transformed to order into blobs and pretzels at the whim of the Public Relations wizard. Thirdly, with the best of intentions, they frequently believe that they can substitute taste for truth.

"Some time ago an attempt was made to assassinate a public figure who, when the grenades went off, was visiting a group of children. Several of the children were killed. Reading about it, a friend of mine, also a public-relations man, thought: "That's bad public relations—trying to kill somebody when he is surrounded by kids." He read on a bit, then put down his paper. "My lord," he thought, "are you going out of your mind? The public relations of assassination, already! It's time for me to get out. I'm going to quit this racket."

And so he did."

THE REPORTER

David T. Bazelon, *"Facts and Fictions of U. S. Capitalism," The Reporter, September 17, 1959.*

"We suffer from an astonishing amount of downright mythical thinking about money and property and basic economic organization. While we all know that America manufactures as much as all the rest of the world, the words, images, and idealogical structures we use to represent to ourselves what we are and what we do tend to be a quarter, a half, or even a full century old. Old, irrelevant, misleading.

"There is a great deal of talk on Madison Avenue these days about the "corporate image," which means giving a humanized face to impersonal structures. And the New York Stock Exchange publicists are pushing hard the idea of a "People's Capitalism," which has as much to do with capitalism proper as "People's Democracy" has to do with democracy proper. . . . What is being simultaneously justified and obscured is the revolutionary emergence of a new American property system—and the fact that the men in control of it, the managers, occupy unexampled positions of power and privilege which are not based on entrepreneurial accumulation or private ownership, to which they were "elected" only by their peers, and for which they have been answerable only to history.

The managers of corporate industrial wealth and the big-money funds—along with their expert advisers—are the ones who are creating the new system; they run it, and they also best understand it. They know everything worth knowing in a practical way about money, property, and the basic economic organization — because that's what they manage. . . . They are personally intimate with the intricacies of the fragmentation of property ownership and the alienation of capital because their very existence derives from those crucial changes in our property system.

What are some of the things the managers "know" that the rest have not gotten around to learning? We had better—because of their elaborate nature—avoid the subjects of the taxtorn dollar and other government regulation. But we might take a straight look at property as such. And here the invitation to understanding reads: *Nothing is very private in a mass society, including property.*"

THE NATION

Walter McQuade, *"Architecture" a new column on design, The Nation, September 19, 1959.*

"The Institute of Personality Assessment and Research of the University of California is requesting "cooperation in the study of creative architects." . . . In addition to architects, an untold number of "creative writers, painters, musical composers, engineers, research scientists, mathematicians and theoretical physicists" also are being tested and explored. . . . The University of California hopes to learn something about what makes creative bombs tick. I can predict one explosion. American industrial designers, the loudest tickers of them all, who are also great believers in psychological testing and frequent customers of testers, are going to be angrier than springtime at having been left out of this."

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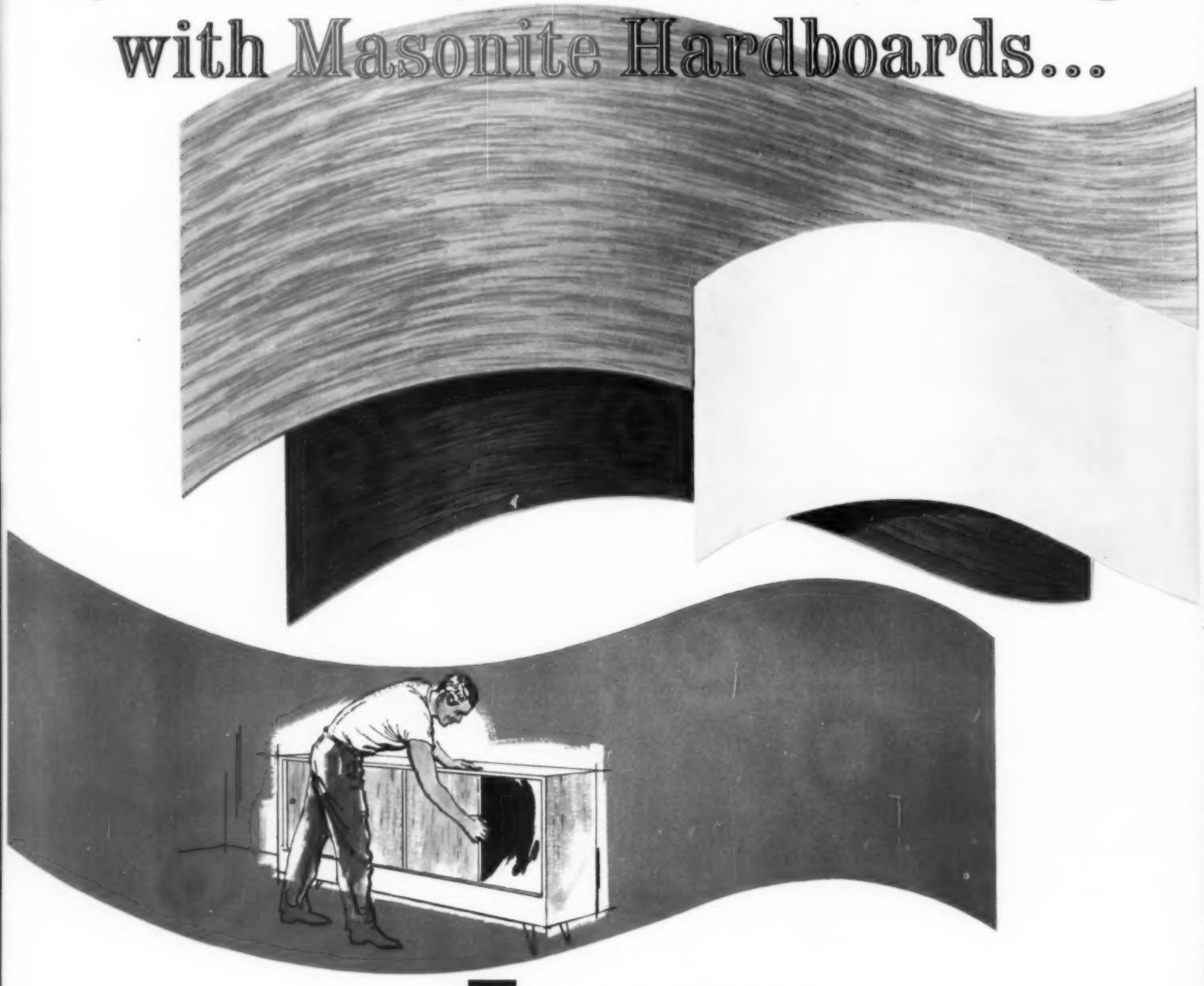

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BOOKS RECEIVED

HANDBOOK OF FASTENING AND JOINING OF METAL PARTS. By Vallory H. Laughner and Augustus D. Hargan 622 pages. Illus. McGraw-Hill Book Company, Inc. New York. $15.00.
Gives detailed information on fastening standards and on the suitability of various methods for different metals. All types of resistance welding, gas welding and arc welding are covered.

ALCOA STRUCTURAL HANDBOOK. Published by the Aluminum Company of America. 416 pages. Illus., graphs, tables. Available from Alcoa Sales Offices or 789 Alcoa Bldg. Pittsburgh. $1.00

INDUSTRIAL BUILDING DETAILS. By Duane F. Roycraft. Second edition. 352 pages. Illus. F. W. Dodge Corporation, New York. $12.75.

MASTERWORKS OF INTERNATIONAL APARTMENT BUILDING AND DESIGN. By R. R. S. Yorke and Frederick Gibbard. 211 pages. Illus. Frederick A. Praeger, Inc., New York. $12.50.
A picture reference book including plans, details of construction, and methods of financing projects.

THE CONTEMPORARY CURTAIN WALL. By William Dudley Hunt, Jr. 462 pages. Illus. F. W. Dodge Corporation, New York. $15.00.

TRENDS IN CONSUMER BEHAVIOR: The Next Ten Years. 50 Pages. The Foundation for Research on Human Behavior, Ann Arbor, Michigan. $3.00.

THE ADOPTION OF NEW PRODUCTS: Process and Influence. 60 pages. Illus., graphs, tables. Foundation for Research on Human Behavior, Ann Arbor, Mich. $3.00.

PACKAGING RESEARCH: An Inventory. By Spencer A. Larsen. 207 pages. An AMA Research Study. AMA, 1515 Broadway, New York.
Classified bibliography and essays on current trends in packaging research and future needs in this field.

MECHANICAL DESIGN FOR ELECTRONICS PRODUCTION. By John M. Carroll. 348 pages. Illus., charts, graphs. McGraw-Hill Book Company, Inc., New York. $6.50.
Deals with special problems of designing and manufacturing devices using electron tubes and transistors. The treatment follows the steps of the designer who must translate an aggregation of electronic breadboard circuits to an item of finished equipment.

PLASTIC SHEET FORMING, AMA Report No. 12. 140 pages. AMA, 1515 Broadway, New York.

CERAMICS: An Illustrated Guide to Creating and Enjoying Pottery. By Vincent A. Roy. 278 pages. Illus. McGraw-Hill Book Company, Inc., New York. $7.25.
An introduction to the art of pottery through detailed description of construction methods. Includes a section on enameling on metal and a chapter discussing career, consumer, and industrial production problems.

THE COMPLETE BOOK OF ARTIST's TECHNIQUES. By Kurt Herberts. 351 pages. Illus. Frederick A. Praeger, Inc. New York. $15.00.
Covers techniques in all arts except sculpture.

INTRODUCTION TO TWENTIETH CENTURY DESIGN from the Collection of the Museum of Modern Art. By Arthur Drexler and Greta Daniel. 99 pages. Illus. Museum of Modern Art, New York. $2.95.
Catalog of the Museum's Design Collection giving an historical background to contemporary design.

THE HISTORY AND TECHNIQUE OF LETTERING. By Alexander Nesbitt. 300 pages. Paper back. Dover Publications, New York. $10.00.

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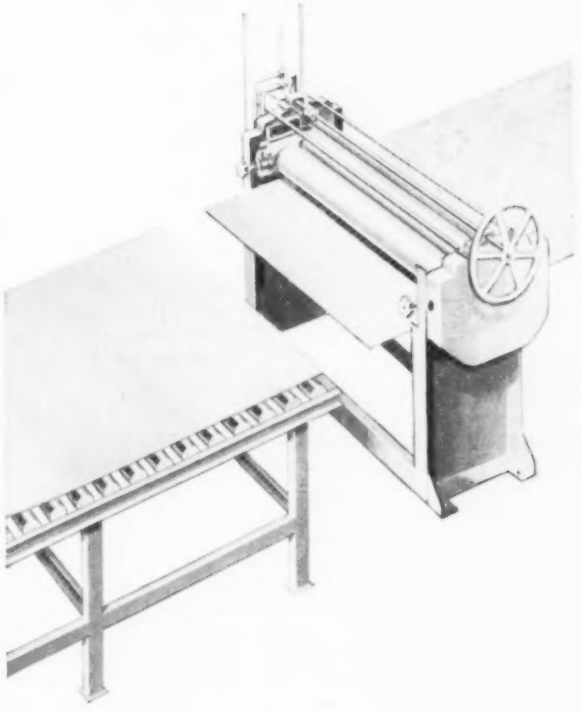

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LETTERS

Are we really sheep?

Sirs:

What you have been saying in editorials for the last year rings true and is something I've been waiting to hear. At last I see evidence of the kind of education and discipline that industrial design needs to really mature. For a while I was beginning to get the impression that I should classify myself as some kind of professional misfit. There were, it seemed, very few that I met who would openly subscribe to the philosophy that design does bear a responsibility—or that to concern oneself with the consequences of one's work was a moral obligation.

After all, this sounds like a pretty corny idea, and rather out-dated at that; besides, what did all this have to do with the business of getting clients and keeping them happy? After ten years of dealing with sales managers, pollsters, and the garden variety of the small "successful" manufacturer, this is not a difficult impression to get. What I found to be most disturbing was the difficulty of honest communication among members of my own species. Did we really believe what we were saying to one another or were we really sheep in wolf's clothing? Of course, survival is important, but does it have to be at the expense of personal identity, by "passing", if you will? What makes the situation even more ridiculous is that it is increasingly difficult to engage a colleague in a person-to-person conversation, for it is complicated by a whole new design jargon of sales and marketing slanguage. Possibly some of this data can be employed as measurement of design intent, but let's not kid ourselves into believing that it is a creative instrument; if it were, thank God that a Beethoven or a Wright lived without benefit of consumer acceptance analysis.

Somehow this sort of intimidation has reached the point where one no longer suggests that his motivation stems from a desire to make a creative and useful contribution—or, that in fact one is creative—but that visual response is an exact science, calibrated to consumer wallet-opening and closing. True, design does have many profitable assets for industry, but this is a healthy and natural by-product of good design. It is nice, for example that research chemistry results in the sale of more pharmaceuticals, but can this fact really be utilized in the lab as a tool for discovering new medicine? And is it the real drive-spring of the researcher?

What does all this have to do with your editorials? Just this: nowhere does the responsibility of examining, criticizing, and evaluating the real issues of the profession belong more than in the hands of ID. No editorials have been as clear, penetrating, and "elevating" as the ones which have recently appeared in ID. One must take note of such a significant shift in design maturity, and the people responsible for it.

CHESTER JOSHUA ABEND
Designer
Dunlap and Associates, Inc.
Stamford, Connecticut

America reviewed

Sirs:

Having read and enjoyed Mrs. Hansen's interesting article in the August issue, I feel nevertheless some grounds for disagreement on one or two points. Although I would agree that Americans generally enjoy the "marvelous and fantastic" it seems to me that it finds its actual expression only through very personalized efforts such as the Pizza Tower, or products on the fringe of the main stream of American design and industry. Today we are undoubtedly observing great efforts to promote a high standard of design, which excludes the fantastic and flamboyant extremes. The tail fin phenomena is a notable exception and is due to an industry which through economic necessity is forced to adopt "fantasy" as a sales gimmick. Following this argument, I must also disagree with Mrs. Hansen when she says that American designers are not really worried about the fine line drawn between shapes that are legitimately daring and those that are unseemly. One has only to look at the case histories of many American products to be aware of the conscious effort that has been made to channel the original daring departure from traditional shapes into a carefully controlled and pleasing result.

When Mrs. Hansen says that she finds such vulgar highway structures as the Pizza Tower "delectable" (although I think this may be slightly tongue-in-cheek), I feel she is observing this kind of thing out of context. She sees it perhaps as an interesting photograph, and does not experience it in its total environment, in a landscaped parkway for instance where one could find very little justification for its existence. There is, of course, every reason to wish for exuberence in design, but the object can still be "well designed."

Finally in regard to Mrs. Hansen's suggestion that the badly designed products of present day American industry will be appreciated by future historians of shapes; I would rather suggest that from the viewpoint of the future psychologist and sociologist, the examples of extravagance in American forms such as the automobile will be of great interest; but in the eyes of the future observer their esthetic value will be almost zero.

JAAP PENRAAT
New York City

Praise for Plastics

Sirs:

This is a superlative example of a publication supplying the designer with just the type of information that is the toughest to obtain without exhaustive research or experience.

MR. L. N. PLISK
Remington Arms Company, Inc.
Ilion, New York

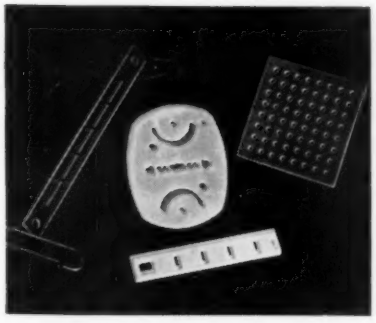
Errata

In the Designer's Directory of Plastics Raw Materials of the September issue Witco Chemical Co. is listed as supplying polyester flexible foams and rigid urethane foams. Witco Chemical Co. does not supply these foams but does supply resins for urethane foams.

Raymond Spilman, who designed the Variplotter-Model 1100E, for Electronics Associates, Inc., should have been included in last month's News as winner of one of WESCON's Awards of Merit. Channing Wallace Gilson and William Brewer should have been credited with the design of a closed circuit TV camera (CM-30) for the Industrial Products Division of International Telephone and Telegraph, for which they received an Award of Excellence.

THIS IS GLASS

A BULLETIN OF PRACTICAL NEW IDEAS FROM CORNING



CONCERNING PRECISION AND PHOTOSENSITIVE GLASS

Pure precision, in any form you like . . . how? With photosensitive glass!

What could be more precise than present-day photography? What more precise than "chemical etching" which works discretely on the molecular level and does away with the variables that invariably follow such operations as grinding, drilling, cutting and engraving?

What, indeed, when we can put exactly 250,000 holes on a plate only an inch square! Each of the holes can be *precisely* the same as its 249,999 companions; they can be square or even triangular. A change in size, shape or number of holes requires only a change in negative.

Such precision is not a drawing board dream. People are *using* photosensitive glass right now: for fine-mesh 500-line screen, for brush holders for digital computers, for various substrates, for printed circuits, for micro-module wafers, for attenuator plates, for dielectric spacers and for evaporation marks.

For more details, send the coupon for a copy of our bulletin on FOTOFORM® glasses.

GOOD HOUSEKEEPING

If you have 2″ x 2″ light filters, are not quite happy with your facilities to store them, and would like to correct the situation, read on.

For only ten dollars we offer this compact kit of four sturdy boxes which were just *made* for holding filters. There's room for eighty filters to rest safely in slotted softwood. The boxes are covered in good-looking, long-wearing buckram.

If you'd like some fresh filters to put in the files, we have a complete set, or any part thereof, available. For three hundred and sixty dollars we'll send you the complete set of sixty-seven, including:

6 ultraviolet-transmitting, clear filters
6 ultraviolet-transmitting, visible absorbing
7 blue
7 blue-green
6 green
18 sharp cut
5 yellow
8 infrared
4 miscellaneous

We are not averse to splitting these sets if you have specialized wants. We can also provide 3⅛″ x 6½″ squares of those same filters, but without the box.

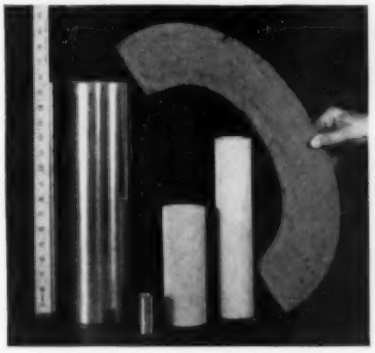
For more information on both box and filters, check the coupon.

TOO PURE TO TOUCH? "AIRLIFT" YOUR PRODUCT.

Molten metal slips down a chute without ever actually touching the chute.

Film and foil flash by over rollers without even touching them.

Tricks like these are accomplished with chutes and rollers made from a relatively new kind of nickel*—with pores in it. Air or some other gas is forced through these pores, and a cushion of gas forms to gentle products along, without a touch of contamination or scratches.



We make the porous nickel in tubes, cylinders, hemicylinders, and flat sheets up to 24″ long. We add holes or projections without secondary finishing. We do any machining needed.

Pores run with a high degree of uniformity in diameters from 1 to 45 microns, depending on space. Yield strength is a full 20,000 psi. Maximum working temperature is 300° C.

We welcome your questions, your specs, your orders.

***Of course, we realize that nickel is far removed from glass, but we figure that the people who read "This Is Glass" are the very people who will be interested in porous nickel.**

CORNING MEANS RESEARCH IN GLASS

CORNING GLASS WORKS 54-10 Crystal St., Corning, N.Y.

Please rush along: ☐ Information on color filters ☐ Bulletin on FOTOFORM Glass ☐ Data on porous nickel and also _____

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Company _____

Street _____

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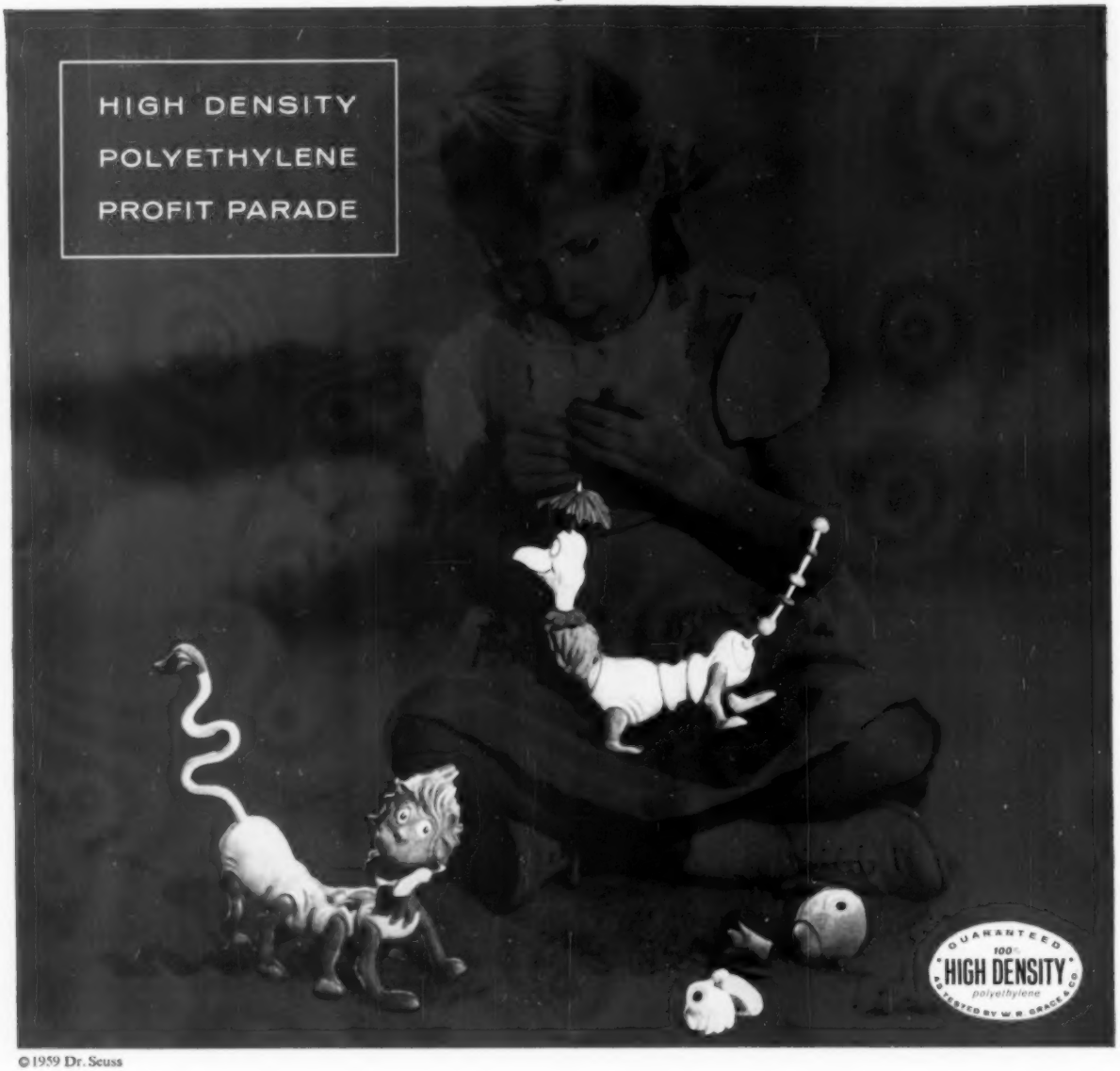


© 1959 Dr. Seuss

Play-proof Properties Spark New Product Idea

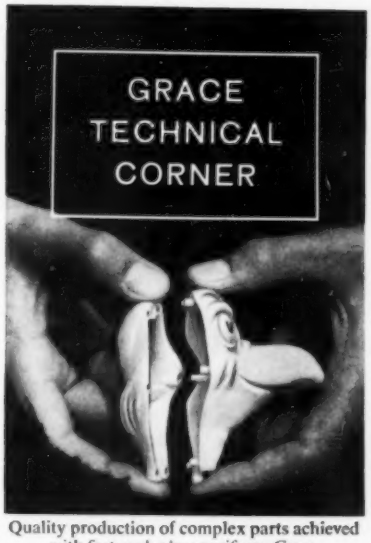
Developing a new product? Grex high density polyethylene could stir up as much excitement for you as it's doing for Revell, Inc. Their new product combines the toughness of Grex with the appeal of fantastic animal characters that roam the pages of Dr. Seuss' juvenile books Sold in kits of interchangeable parts, Dr. Seuss Zoo inhabitants snap together and pull apart in millions of ways—are colorful and strong enough to take the roughest treatment without breaking, chipping or cracking.

There is virtually no limit to profitable new product applications with this versatile Grace plastic. Here are just a few of its advantages: It can be fabricated at low cost and molded in any color. It is a hard, stiff, rugged thermoplastic that takes boiling or freezing without losing its shape or strength.

Find out more about high density polyethylene for the new product you have in mind by calling in the experts. Grace has the production facilities, technical service and experience to help put your product in the Grex profit parade. We're easy to do business with.

Grex is the trademark for W. R. Grace & Co.'s Polyolefins.

W.R. GRACE & CO.
POLYMER CHEMICALS DIVISION
CLIFTON, NEW JERSEY



Quality production of complex parts achieved with fast cycles by specifying Grex.

Here you see 2 of 19 parts that make up Gowdy the Dowdy Grackle. Note their detail, irregularity of contour and how they snap together. In addition to Gowdy, Revell markets three other Dr. Seuss characters that are equally complex. The use of Grex high density polyethylene and substantial technical assistance from Grace helped Revell solve design and molding problems for this project. You can expect the same kind of benefits by working with Grace.

Design requirements of these Revell toys called for rigid parts with high impact strength. Resiliency was also needed to make snap plugs or poppets practical devices for snapping the parts together firmly and pulling them apart easily. Grex combines all three properties required—rigidity, high impact strength and resiliency. And the fact that the most intricate details can be molded with Grace's plastic provided freedom in reproducing these fantastic characters in three-dimensional shapes as suggested in Dr. Seuss books.

Mold layout and production. Revell's two molds for Dr. Seuss toys are among the most complicated ever used with Grex. They contain over 60 cavities; each cavity has an irregular parting line and many have serious undercuts Stripping the parts from molds like these would have been either too slow for economical production or completely impossible with other plastics. High density polyethylene, however, solidifies in the mold at a high temperature yet remains flexible for stripping at fast cycles. Production efficiency was increased by using beryllium copper in many cavities and cores for effective heat removal.

Interested? If you have a job for high density polyethylene count on Grace for help. Now's the time to contact:

Technical Service Department,
W. R. Grace & Co., Clifton, N. J.

The American Society of Industrial Designers

invites you to its fall conference

of MANAGEMENT speakers on

Planning by Design

At The Hotel Statler-Hilton, New York

Thursday, November 12

THE SALES IMPACT OF A CORPORATE IMAGE PROGRAM
Lee S. Bickmore, Senior Vice President
National Biscuit Company

INTERPRETING PUBLIC TASTES INTO SUCCESSFUL PRODUCTS
Henry C. Bonfig, Vice President
Columbia Broadcasting System, Inc.

PRODUCT PLANNING IN AMERICAN INDUSTRY
Conrad Jones, Partner
Booz, Allen & Hamilton

HUMAN FACTORS ENGINEERING IN PRODUCT DEVELOPMENT
Renato Contini, President
Human Factors Society

THE IMPACT OF TECHNOLOGICAL CHANGE ON FUTURE PRODUCTS
Dr. B. D. Thomas, President
Battelle Memorial Institute
Columbus, Ohio

THE EFFECT OF CHANGING TASTES ON NEW PRODUCTS
Walter Dorwin Teague
Walter Dorwin Teague Associates

Friday, November 13

DESIGNING AN "ADVANCED" LINE OF PRODUCTS
Carl L. Bixby, Jr., Manager of Marketing
Kitchen Appliance Department
Hotpoint Division
General Electric Company
Chicago, Ill.

PRICING IMPLICATIONS OF BETTER PRODUCT FEATURES
Dr. Alfred B. Oxenfeldt, Professor of Marketing
School of Business, Columbia University

THREAT OF FOREIGN COMPETITION TO AMERICAN PRODUCTS
Mr. Harvey Whidden, Vice President
Bulova Watch Company

DEVELOPING DESIGN CONSCIOUSNESS AND COORDINATING ITS USE THROUGHOUT AN ORGANIZATION
Mr. R. L. Monahon, Manager
Corporate Design Department
International Business Machines Corporation

PRODUCT DEVELOPMENT AND END-USE MARKETS
Bay Estes, Vice President, Marketing
United States Steel Corporation

THE IMPORTANCE OF DESIGN IN INDUSTRIAL EQUIPMENT
Myron S. Curtis, Vice President Engineering
Warner and Swasey Co.

for registration information write now to

Fall Conference/ASID
15 East 48th Street
New York 17, New York

NEWS

Award tells designer's story

Three designers of products in which aluminum has been effectively used will be honored by the Aluminum Company of America next month with the presentation of the first Alcoa Industrial Design Awards. Recipients of the awards are consultant designers Charles Eames and Peter Muller-Munk; and F. W. Priess, manager of packaging and product design at Montgomery Ward & Company.

The awards will be presented by Alcoa at a luncheon held during the ASID's annual meeting in New York on November 12-14.

The unique feature of the award is a four-page advertisement in INDUSTRIAL DESIGN and FORTUNE MAGAZINE in which the designer's work will be discussed. Alcoa thus intends to do for the designer what he cannot do for himself: tell his own story in advertisements. The other part of the award is a free-form trophy executed by Alcoa's staff designers.

The 1959 winners were chosen by a jury of design critics and educators consisting of Mrs. Deborah Allen, Alfred Auerbach, William Friedman, Mrs. Ada Louise Huxtable, and Arthur Pulos. The jury made its choices on the basis of an exhibit of designs in aluminum.

Although the Alcoa program constitutes an award to the designer, and not to any product or manufacturer, the three products shown here represent an appropriate and elegant use of aluminum, in the opinion of the jury. The awards were given for work placed on the market between January 1, 1958 and March 15, 1959. The program is projected as a continuing annual event by Alcoa.

The three winners are shown on this page with examples of their work in aluminum. Charles Eames' chair features an aluminum base. The power tool was designed for Montgomery Ward & Company, and is shown in its housing. Peter Muller-Munk designed the 4 x 5 Super-Graphic camera; one among several of its innovations is the case, formed of an aluminum extrusion, wrapped around and butt welded at the center of the bottom.

New design prize announced

The establishment of an annual $10,000 design award has been announced by Kenneth Holland, president of the Institute of International Education, in New York.

The award will be presented each year to a person or group "who has aided the development or appreciation of visual design in the useful arts." Called the Kaufmann International Design Award, it will be given by the Edgar J. Kaufmann Educational and Charitable Foundation of Pittsburgh in memory of Edgar J. and Liliane S. Kaufmann, and will be administered by the Institute of International Education.

The award will be granted for records of achievement rather than for individual designs or products. Those eligible will include critics, historians, teachers and philosophers, as well as designers.

The award has been established by Edgar Kaufmann, Jr., who is a member of the Institute of International Education's Advisory Committee for the Arts, and Chairman of its Design Subcommittee. The subcommittee, which is solely advisory, will specify fields for consideration each year, and appoint qualified juries to make the actual awards.

Other members of this Subcommittee will be Just Lunning of Georg Jensen, Inc. and Fredrick Lunning, Inc.; Mrs. Jane McCullough, Consulting Editor, INDUSTRIAL DESIGN; Peter Muller-Munk, of Peter Muller-Munk Associates; David Strout, of the Rhode Island School of Design; and Mateo Lettunich, head of the arts division of the Institute of International Education, who is secretary of the Committee.

Charles Eames

F. W. Priess

Peter Muller-Munk

Chair, with an aluminum base, for Herman Miller.

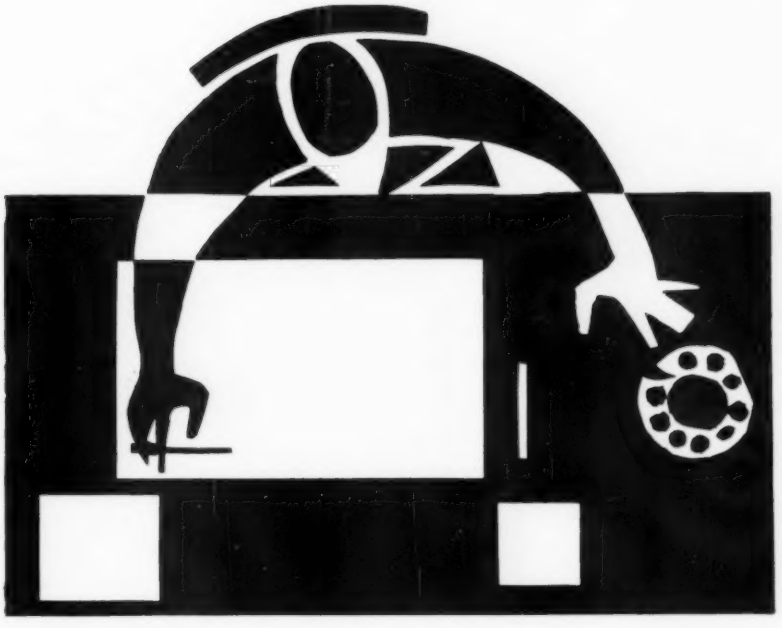
Power tool in Montgomery Ward's "Power-Craft" line.

Super Graphic 4 x 5 Press Camera for Graflex, Inc.

ASID chooses officers

Richard S. Latham, of Latham-Tyler-Jensen, was this month elected president of the American Society of Industrial Designers; Raymond Spilman, of Raymond Spilman Industrial Design, vice-president; Clarence Francis Graser, manager of industrial design at IBM, secretary; and Kenneth Van Dyck, of Van Dyck Associates, treasurer. New directors are William M. Goldsmith, Robert H. Hose, and Milton Immermann.

THE MAN BEHIND
THE MAN BEHIND THE DESK



executive offices
one-room offices
partitioning systems
300 *pictorial ideas*
secretarial corridors
single-floor offices
multi-story offices
reception rooms
combination offices
general office
Time-Life building
executive dining rooms
tenant owned spaces
rental space
sales offices
lobbies
who designs offices
lounges
city offices
country offices
Seagram offices
board rooms
large office plants
Olin Mathieson offices
conference rooms
lunchrooms
list of designers

As businesses strive to make the most economical use of high-rent office space, the man behind the desk gets more attention than ever before. And the man behind *him*—the business client—needs all the help possible from architects, interior designers, and industrial designers to make office workers more comfortable—and happier, to provide executives with more impressive, less formal surroundings—and more efficiency.

Interiors Book of Offices tells the businessman how he can save money in a well-planned office plant—but almost as important, it helps him to go about choosing the right designer to solve his particular set of problems. Using over 300 illustrations, the book presents the reader with ideas galore; the accompanying list tells only part of the story.

Interiors Book of Offices has 25 plates in full color because color is such an important part of today's office plant. It includes a twelve-page section (8 of them in color) on the new Time-Life offices. These previously unpublished offices and the hundreds of others presented are living proof that good planning and imaginative design thinking can provide beautiful—yet really economical—surroundings for the man behind the desk and the man behind him.

Interiors Book of Offices

PUBLICATION DATE: NOVEMBER 1, 1959

SAVE BY ORDERING TODAY —

Get your copy for only $10.00 — a 20% saving off the regular $12.50 price by ordering now! Send no money: just fill in the blank, slip it in an envelope, and mail. We'll do the rest. This pre-publication offer is good for a limited time, expiring November 1, 1959.

Interiors Book of Offices

184 pages, 9 x 12, over 300 illustrations, 25 in full color. Regular price $12.50. Pre-publication price $10.00.

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Please reserve a copy of Interiors Book of Offices *at the special* $10.00 *pre-publication price.*

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Postage will be paid on cash orders except Canada and foreign add 35c per book.
New York City Sales Tax—add 3% on orders to be sent to New York City.

Basket tables and traditional carving set shows scope of Bonniers show

Japanese wares shown at Bonniers

A show illustrating both contemporary and traditional Japanese design opened this month at Bonniers, a New York specialty shop well know for its displays of crafts.

The display includes cutlery, baskets, pottery, china and, according to the sponsors, is intended to show the "keen Japanese sense for detailed details, their love for disciplined simplicity and planned disorder."

Shown above are (top, left) basket tables made of akebia and bamboo with iron legs. They were designed by Genchiro Inokuma and Sada Wada. The traditional cutlery (above, right) includes two knives, a chopper and a fork.

Varga exhibits in Pittsburgh

A show of newsprint advertising graphics designed by Arnold Varga will be on exhibition at the Carnegie Institute of Fine Arts in Pittsburgh through October 25th.

Mr. Varga is presently art director of Ketchum, MacLeod & Grove, Inc., in addition to his work as a freelance graphic designer. He has been the recipient of fourteen medal awards from the Art Directors Club of New York and the Art Directors Club of Chicago and ten Distinctive Merit Awards from both of these associations, in addition to the Cleveland Art Directors Club. On eight occasions he has been awarded prizes in the American Institute of Graphic Arts exhibitions of the fifty best advertisements of the year.

Collection of enamels

An exhibition of the art of enamel work, as practiced by both ancient and modern artisans, opened last month at the Museum of Contemporary Crafts in New York, and will continue until November 29th. The exhibit consists of four sections: a historical review, a contemporary survey, the work of three American artists, and objects commissioned by the museum.

The historical review contains pieces from Byzantine, Gothic and Renaissance works. From this section (below) is a French cross from Limoges dated in the early Thirteenth or late Twelfth Century. It stands about two feet high.

The contemporary section includes about

300 pieces, the designs of 70 craftsmen working in this country.

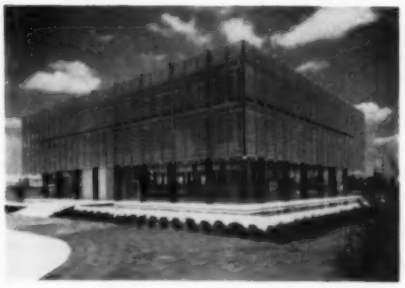
The three American artists are Kenneth Bates, Karl Drerup and Edward Winter, whose work is studied in retrospect.

Nine additional pieces, created by various artists, were commissioned by the museum; upon the closing of the exhibition, they will remain in the museum's permanent collection for show.

Aluminum building for Reynolds

An aluminum office building (above, right) has recently been completed in the Northland area of Detroit for the Reynolds Metals Company. Minoru Yamasaki designed the building to emphasize the utility and beauty of aluminum and conceived it as a "jewel on stilts." The building uses about 200,000 pounds of the light metal, its greatest single use being in the gold anodized sun screen which covers the second and third floors on all sides. The screen consists of wings of tubing, locked together in a lacy pattern, which is said to permit unobstructed vision from the inside.

Landscaping and interior design are planned as extensions of Yamasaki's



"jewel" concept. The interiors of the building are by W. B. Ford Design Associates, who also designed the interiors for the National Bank of Detroit's main office, completed recently.

Architectural program reviewed

The architectural program of U. S. embassies abroad was the subject of an exhibition and meeting of the Architectural League of New York. Photographs and models of 43 notable buildings in the program were on exhibit in the first floor gallery of the league.

The exhibition was part of a series which the Architectural League is holding to honor achievements in different fields of architectural design. The subjects of the exhibitions will also be the discussion subjects of meetings that will be held during the period of the exhibitions. The next exhibit will be devoted to health and recreational buildings, with two related meetings scheduled for November 5 and 19.

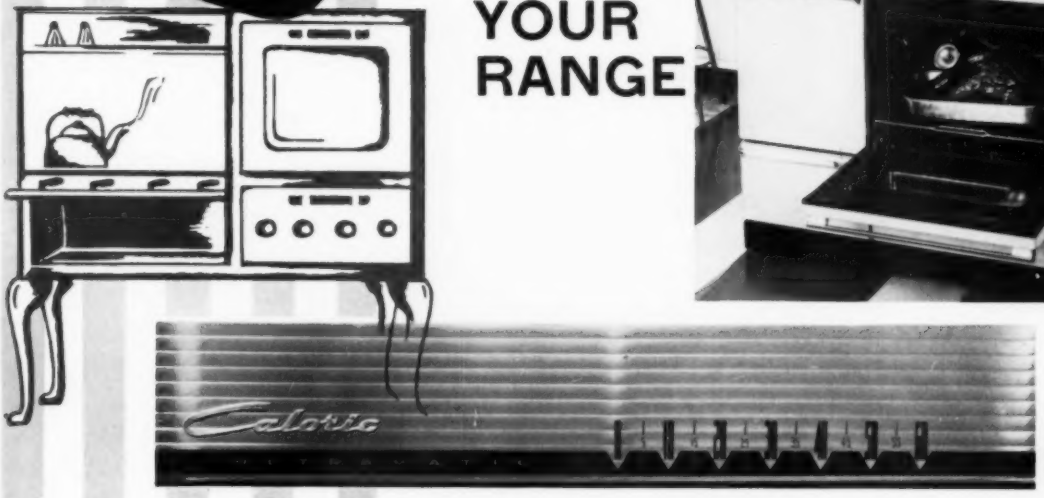
Exhibit part of IDI meeting

A design exhibit will be part of the Industrial Designers Institute conference in Chicago, from October 23-26. The exhibit will show photographs of product design, graphics and furniture by IDI members. Entries will be judged in Chicago by each local chapter head and a staff of two. Those entries selected will be displayed at the close of the meeting, and may possibly be sent on the road as a traveling exhibit. The conference and the exhibit will be held at the Lake Tower Motel, Lake Shore Drive and Ohio Street, in Chicago. Entries should be mounted on blocks of masonite, and may be photographs, photostats, sketches or fabrics. No three-dimensional work will be considered.

CERAMIC DECORATED GLASS...

SPICE

FOR YOUR RANGE



The sparkling spice of decorative glass, range makers such as Caloric Appliance Corporation have found, adds that cook-tantalizing touch where it's seen and needed.

Beautiful, scratch-defying ceramic decoration in red and black gives "Ultramatic" ranges an easy to use and clean, lamp and control panel. Clever designing uses textured "Linex" glass with an adhesive backed, gold anodized aluminum nameplate.

Spice-magic is yours in dramatic "3-D" designs that come through the glass, in transparent, translucent and opaque colors. Ideal for timer dials, clock faces, backsplash panels of distinction produced at Croname's huge, efficient new 81/2 acre facility.

Croname craftsmen also offer cold colors, bending, edge-lighting, sand blasting, drilling. Select economical GLASS for your design. Call your Croname representative for other Glass IDEAS.

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Korean design at Akron

A recent exhibit of traditional Korean products, and contemporary Korean crafts and products developed through the aid of the U.S. Government, was presented at the Akron (Ohio) Art Institute with the cooperation of the Akron design firm of Smith, Scherr and McDermott. The firm has completed the second year of a three-year contract with the International Cooperation Administration and the Korean Republic, for assistance in developing products and marketing for Korean light industry and handicrafts. The exhibition (above) was based on the design firm's collection of traditional Korean objects, and on contemporary products developed under the aid program.

Carpet designs win prizes

First prize in the second competition for rug and carpet designs held by the Bigelow-Sanford Company, in cooperation with the Finnish Society of Crafts and Design, was won by Sirrka Autio-Polkkynen, for her design of an area rug with an abstract interpretation of the spruce tree. In the 1958 competition, Mrs. Autio-Polkkynen won second prize. Her work has been exhibited in the Victoria and Albert Museum, in London, and is in the permanent collection of the Bergen Museum of Crafts, in Norway.

Second prize was awarded to Kirsti Innari-Winqvist, and third prize to Eila Annikki-Vesimaa. A total of 52 rug and carpet designs were entered in the competition this year.

Building conference planned

A conference on building design will be held from November 17 to 19 at the Shoreham Hotel, Washington, D.C. The conference is under the auspices of the Building Research Institute and will be open to the interested public as well as to members of the institute. Among the subjects discussed will be sandwich panel design, metal curtain walls, and new heating techniques for modern buildings.

Room of Tomorrow at hotel show

One of the exhibits at the National Hotel Exposition will be a room constructed to illustrate what many manufacturers feel to be the coming trends in hotel or motel room design. Called the "Room of Tomorrow," the room was designed by Tom Lee

and is the result of the cooperation of almost twenty different manufacturers who contributed new products to it. In the photograph (above) is shown tropical panels by U.S. Rubber, a new handset telephone by Bell Telephone, and a Simmons weatherproof chair in plasticine-covered wire.

The National Hotel Exposition will take place at the New York Coliseum beginning November 2nd.

Moscow Fair scored

One of the most serious flaws in the American National Exhibit in Moscow was the failure to effectively plan adequate traffic patterns for the immense crowds who attended, according to Belmont Corn, Jr., president of The Displayers, Inc., of New York. Mr. Corn, who heads an exhibit design firm, visited in Moscow for a week, and concluded that there was much wasted space in the exhibit, and that much of what was shown was "incomprehensible to the Russian mind."

He compared the American exhibition to the permanent Soviet Exhibit of Economic Achievement. Although more people visited the Soviet exhibit daily, he said, there was more space and more elbow room for each visitor there than at the American exhibit.

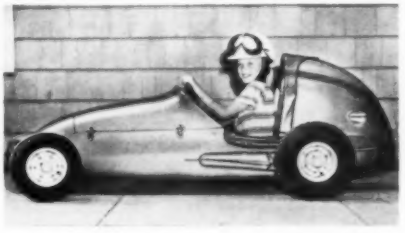
Mr. Corn commented that "while the remarkably patient and good-humored Russian lines up for most of the essentials of life — food, transportation, clothing — the lack of sufficient space (at the American show) was an unnecessary strain on them, as well as on the hard-working and greatly appreciated American guides. For example, it was estimated that the highly popular Circarama, which provided the Russians with a vividly dramatic panorama of American life, could only only be seen by approximately ten percent of the Fair's visitors."

Mobile banks introduced

Two mobile banks constructed by the International Trailer Corporation of Baltimore for the Fidelity-Baltimore National Bank will be introduced to the Baltimore area soon. About the size of large trailers, they are built to be set on temporary foundations, particularly in new suburban areas, and then to be moved on to new locations when a permanent bank is built.

Children's racing cars built

An addition to the equipment available to the juvenile racing enthusiast is this small racing car (below) built by the Larc-Douglas Company of Great Neck, L. I., from contact-molded fiberglass laminated parts made by Lunn-Laminates.



The racing car, called the "Offyette," is available either in assembled form or in a "do-it-yourself" kit. The overall length of the car is 79 inches; it is equipped with an automatic clutch as in larger cars.

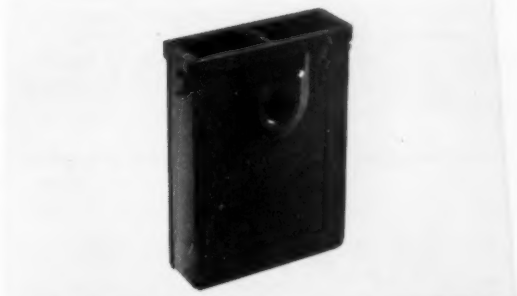
Philadelphia firm to design fair

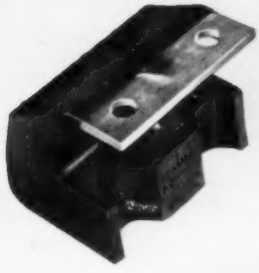
Carreiro Design Associates has been selected by the Office of International Trade Fairs, U. S. Department of Commerce, to design a trade fair which will be held in Casablanca from April 24 to May 10, 1960.

The design firm, whose offices are in Philadelphia, plans to use that city's history as a port as the theme for the fair.

Displays will depict scenes from the past of Philadelphia, the city as it is now, and projected plans for its future. Joseph Carreiro, head of the design firm, appointed staff members Charles E. Broudy as supervising architect, and William B. Sklaroff as director of exhibits and graphics for the fair. After being shown in Casablanca, the show may be taken to Turkey, and negotiations are also in progress for it to travel to other locations as well.

FROM UNBREAKABLE CASES





TO MOTOR MOUNT BASES—

WHENEVER CUSTOM-MADE RUBBER PRODUCTS ARE CALLED FOR, CALL FOR YOUR FIRESTONE TECHNICAL SERVICE MAN

Taking bottlenecks out of production lines is a specialty with your Firestone Technical Service Man. He's adept at handling varied production problems ranging from shatterproof battery cases to motor mount bases. And—at the drop of an invitation—he'll meet *your* individual needs with a custom-tailored plan! He'll analyze your specifications expertly and make precise recommendations. Then he'll put Firestone's complete rubber and latex custom-production service at *your* service.

Firestone's extensive laboratory facilities develop the exact compounds and product designs to fit your requirements. And Firestone's mass-production facilities deliver close-tolerance, high-volume output at reasonable costs.

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DOW | **NEW MATERIALS GIVE PRODUCT PLANNERS FREE REIN**

A few years ago, the management man with new products on his mind had to think of how to make them in terms of the limited choice of materials then available. Now, he first dreams up the desirable qualities his product should have, then selects the materials that meet these requirements. Plastics are one important reason for this big difference between yesteryear and today. Many different combinations of properties are available in plastics formulations and the selection grows wider every day. New developments in plastics materials, such as those reported below, provide plenty of ideas for new product planners.

NEW PLASTIC MAKES LUMINOUS CEILING IDEA COME TRUE

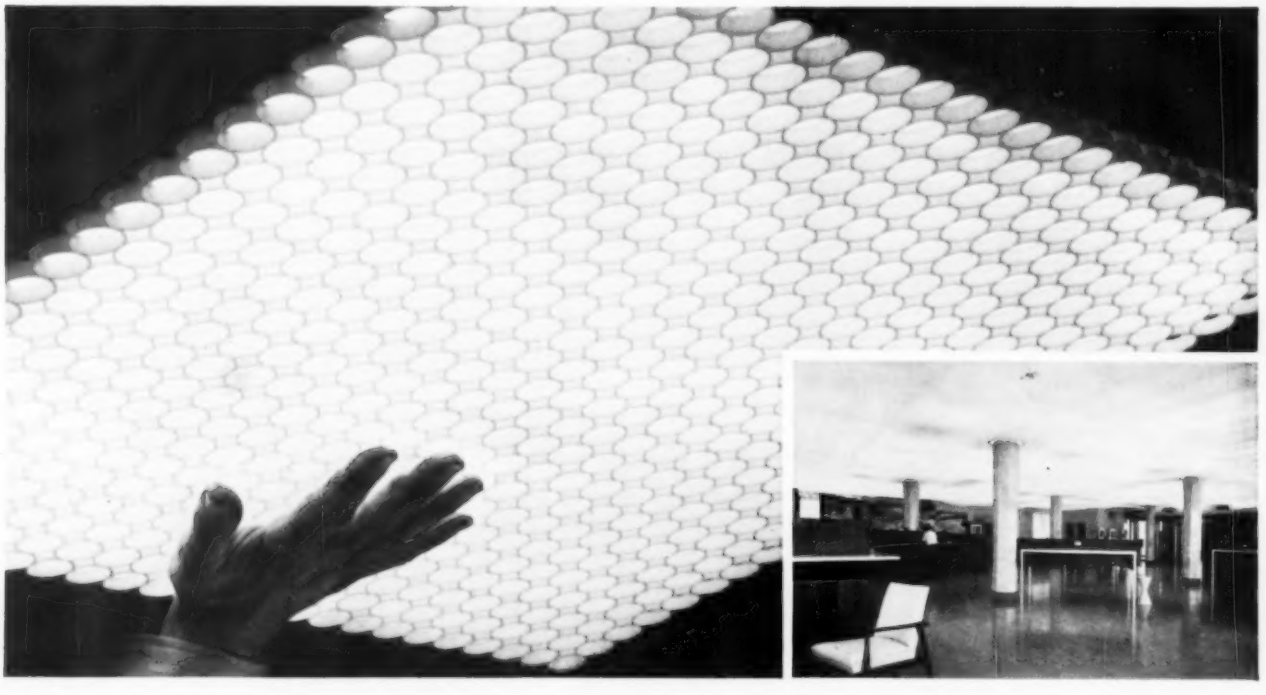
Unique suspended ceiling material made of Dow thermoplastic forms an unbroken luminous ceiling line, yields more light.

An architectural products manufacturer recently approached Dow with an idea for a new product. They knew exactly what they wanted, but knew of no material that would meet their requirements. They wished to manufacture a grid panel for use in suspended ceilings that would diffuse light to create the effect of a continuous luminous expanse of infinite dimension. The material they sought must be molded into intricate shapes, be dimensionally stable and have exceptional non-yellowing and light diffusing characteristics.

Fortunately, Dow was getting ready to introduce a new material that met these requirements perfectly. In a short time the manufacturer had his material and was in full production . . . an example of how manufacturers frequently find that the one right material for the job is already under development—or in production—at Dow.

This new material, called Styron® Verelite 672, was developed specifically for such applications. It possesses unique light transmitting and diffusing properties, and has an exceptionally high resistance to yellowing, a malady common to many materials under prolonged exposure to fluorescent light.

The grid panels, which fit together to form a continuous pattern for areas of any dimension, are finding extensive use as room dividers and display boards, as well as in ceilings. Light fixtures, sprinkler heads and other equipment can be installed above the ceiling level and thus be hidden from view.



HARDHEADED SALES GAINER

When professional gridmen make and take those earth-shaking tackles their heads need all the protection they can get. That's why several pro teams equip their players with helmets made of lightweight, super-tough Ethocel®. Dubbed the "aristocrat" of all thermoplastics, high-impact Ethocel takes shock well over a wide temperature range. It has a high gloss and can be matched to many colors. Its excellent strength and molding characteristics permit large one-piece moldings for many rough and tumble applications.

THIS DRAWER WON'T WARP OR SPLINTER

This plastic drawer for the home is another example of creative engineering with Dow plastics in the building products field. Vacuum-formed of Styron® 475, it offers the last word in convenience and durability wherever built-ins are applicable. The manufacturer also supplies the glides and framing, leaving only the decorative exterior to be applied. The outstanding forming characteristics of Styron 475 keep production men happy. Rounded corners make the drawer easy to operate and easy to clean and, of course, it's splinter-free. It's long on looks as well as service life . . . cannot swell or warp because of the extremely low moisture absorption of Styron.

• • •

DON'T FREEZE THAT DESIGN until you've checked with Dow. Chances are, one of the many Dow thermoplastics will fit your materials requirements "to a tee". To find out, write today to THE DOW CHEMICAL COMPANY, Plastics Sales Department 1514BR10.

• • •

INDUSTRIAL MOLDING MATERIALS

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BUILDING PRODUCTS

THE DOW CHEMICAL COMPANY
Midland, Michigan

DOW

TWO MORE PRODUCT IMPROVEMENT IDEAS WITH DOW PLASTICS

STYRON
Great fun for the junior homemaker! This complete miniature washer-dryer contains several parts made of different Styron formulations. Properties demanded by this application include toughness, structural strength, smooth surface, clarity and resistance to soap chemicals. Styron also gives the production man a break with its excellent moldability.

PVC RESINS
These see-through tubes typify the many uses being made of formulations utilizing Dow PVC. The resulting high quality compound is then extruded into tubing, filled, sealed and crimped to make an attractive, low cost package. Two reasons Dow PVC is often selected: its high processing uniformity and resistance to many chemicals.

GP
GEORGIA-PACIFIC

Company News

RETAINED: HARLEY EARL ASSOCIATES by Canada Starch Company as consultants on packaging . . . BECKER AND BECKER ASSOCIATES by the State of Rhode Island for a study of all state-owned or leased office space in Providence . . . ALAN BERNI & ASSOCIATES, INC. by Loma Plastics, Inc., as merchandising-design counsels . . . DAVE CHAPMAN, INDUSTRIAL DESIGN by Educational Facilities Laboratories for a national study of facilities for teaching by television . . . FAY MOWERY MOORE by Aerosol Techniques, Inc. as consultant for their new company design service . . . BEATRICE WEST COLOR, INC., by Caloric Appliance Corporation as color consultants for its products . . . GOOD DESIGN ASSOCIATES by the First Methodist Church of Michigan City, Indiana to coordinate interior planning and furnishings for a building expansion program . . . ARMSTRONG-BALMER AND ASSOCIATES by Haloid Xerox Inc., Bissell, Inc., and Borg Warner Corporation.

COMPLETED: By MITCHELL-HOPPER ASSOCIATES, a new trademark (above) for the Georgia-Pacific Corporation, a timber products company . . . by KENNETH HOWES, the design of the Sunbeam Alpine (right).

NEW OFFICES: JOHN EDDLEMAN STUDIO, 444 East Ontario, Chicago.

GOING PLACES: WILLIAM SHERMAN INDUSTRIAL DESIGN to 847 West Jackson Boulevard, Chicago . . . FRED E. DENZLER DESIGNERS to 444 North Michigan Avenue, Chicago . . . ASSOCIATED INDUSTRIAL DESIGNERS to 95 Madison Avenue, New York.

Events

WALTER MCQUADE is writing a regular architectural column for *The Nation* . . . MARGERY MARKLEY, member of PDC's board of directors, spoke on color in package design at a panel presented to the Fashion Group Career Course of The Fashion Group, Inc. early this month.

COMPETITIONS: Photographs of distinctive hardwood products are invited for submission in the 1959 DESIGN IN HARDWOODS competition held by the Fine Hardwoods Association of Chicago. Applications may be obtained by writing to the "Design in Hardwoods" Awards Production, Fine Hardwoods Association, 666 Lake Shore Drive, Chicago 11, Illinois . . . The Lamp and Shade Institute of America will sponsor a STUDENT LAMP DESIGN contest this Fall. Information may be obtained by writing to the Institute at 15 East 26th Street, New York 10, N. Y. . . . A competition will be held by the 15TH ANNUAL EXHIBITION OF ADVERTISING AND EDITORIAL ART for original designs, commercials, photographs and tv commercials. The competition will be open to any persons in the field of advertising, and entries may be addressed to the Art Directors Club of Los Angeles, 4315 West 2nd Street, Los Angeles 4, California.

Ceramics from Sari Dienes show

SHOWS: An exhibition of new paintings and ceramics (below) by SARI DIENES, whose work has been compared in spirit to Buckminster Fuller's and whose "painting-rubbings" of manhole covers appeared in ID last March, was shown this month at the Betty Parsons Gallery in New York . . . THE LUNNING COLLECTION, an exhibition of the work of a dozen Scandinavian furniture designers and of 14 recipients of the Lunning Prizes for Good Design, will be on view at the Philadelphia Museum College of Art through November 14.

People

APPOINTED: WILLIAM B. WINTERBOTTOM as vice president and director of product

Kenneth Howes with the Sunbeam Alpine

design at Raymond Loewy's Chicago office . . . DAVID P-C CHANG as head of the new Loewy office in Puerto Rico . . . RICHARD MONTMEAT as manager of industrial design for the newly formed General Electric radio and television division . . . THOMAS FOSTER to Harper Landell & Assocates . . . JACK LITTLE, of J. M. Little Associates in Maumee, Ohio, as visiting lecturer in industrial design at the University of Michigan . . . R. A. CLARK as manager of product styling and P. L. HELGESON as associate product designer at Caloric Appliance Corporation . . . ROBERT S. QUANDT as manager of product design at Corning Glass Works . . . PETER R. HAYES to design research activities with the closure division of Alcoa . . . GEORGE BIST as design consultant at Bomac, a Toronto business firm . . . RICHARD JANES as treasurer of Harley Earl Associates . . . LOUIS DORFSMAN as vice president of advertising, promotion and press information at CBS Radio . . . ROBERT G. PARKS as senior project engineer at Neff Instrument Corporation . . . KURT HELMSTAEDTER as executive vice-president and RICHARD E. AUDSLEY as vice-president of John S. Bolles, San Francisco architectural firm . . . D. A. YOUNG as chief design engineer at American Metal Products Company . . . MORRIS WELCH as client contact executive at William Pahlmann Associates . . . PATRICIA OSBAND, ROY CARL BAKER and BERTON DULCE as research associates at the Institute for Motivational Research . . . ELLEN M. GROTTO as advertising manager at Jens Risom Design . . . RICHARD J. SARGENT as vice president of the new portable appliance division, O. H. YOXSIMER as general manager of the television-radio division of the East Springfield, Mass. appliance plant of Westinghouse. . . . SAUL NEUFELD as engineer in charge of Miami office of Barbanel Engineering.

R. G. Parks

R. A. Clark

D. P-C Chang

P. L. Helgeson

G. Bist

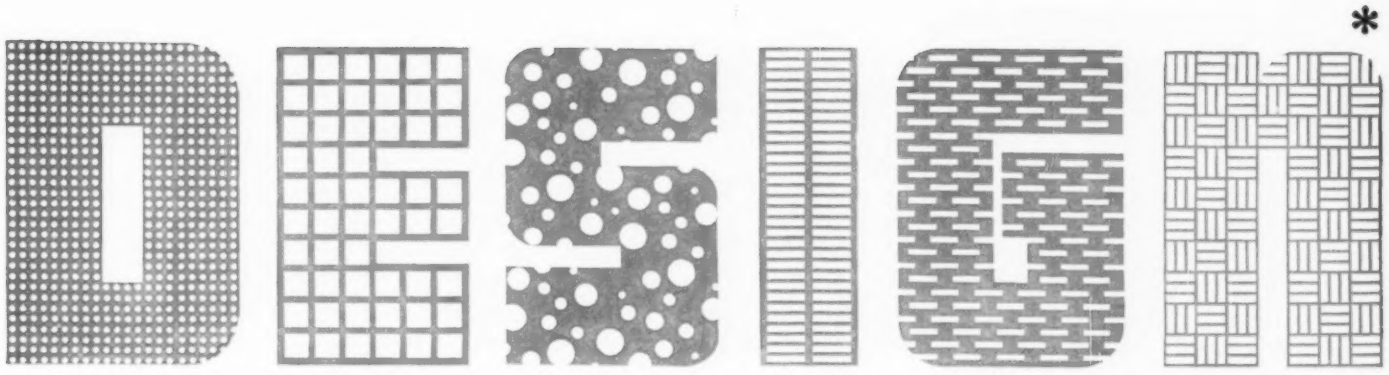
J. Little

S. Neufeld

W.B.Winterbottom

H&K perforated materials

a perfect medium of



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H & K sales engineers will be pleased to work with you on your perforating requirements.

Mail coupon to nearest H & K office—today!

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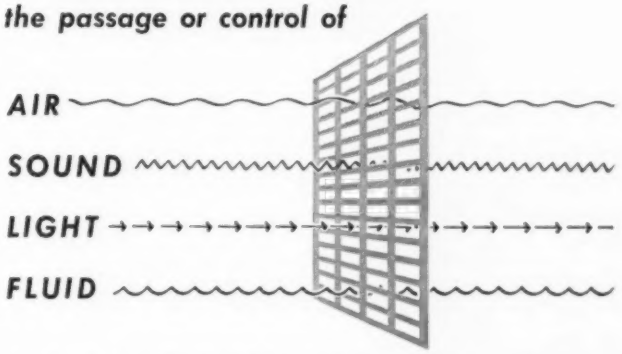

or just for their inherent aesthetic qualities, H & K perforated materials can serve you . . . best!

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Coming in the November 1959 issue of

INDUSTRIAL DESIGN

Color-organized computer

Both the floor plan and component functions of a medium-range computer by a major electronics manufacturer are organized and explained by the use of color in their shrouding. Working together from early planning stages, the manufacturer's director of functional design and a consultant designer have related the purposes and controls for various components—cabinets, console, and printer—by enclosing them in housings that use planes of red, yellow, and blue to establish the interdependence of the jobs performed by their working parts. ID's story will explain how it was done—and why the manufacturer thought the project was necessary.

Street furniture

In a large city there are as many philosophies about, and agencies responsible for, the look of street accessories as there are accessories themselves. ID will take a look at old and new street signs, street lights, traffic signals, mail boxes, police and fire alarm call stations, and will also look sharply at the controversial question of whether or not they should be related in design or—even more controversial—whether or not they should be combined into a single, all-purpose street fixture.

Sporting goods innovations

When the rules of the game change, so must the design of the equipment. And sometimes a change in equipment alters official rules and regulations, as in the case of Hank Greenberg's oversize glove. ID's strictly neutral stand will consider the ways in which the evolution of sporting equipment design has reflected—as design always does—the evolution of the sports themselves.

Fancy pans and pots

The Four Seasons in the Seagram Building, New York's newest posh restaurant has custom-designed cooking pots as well as tableware. ID will explain how the industrial designer responsible for them related them to the restaurant's theme, which in turn was related to the total design to the most carefully integrated of all modern office buildings.

The uses of type

A leading type designer explains how he works, and how the total composition of a graphic design is likely to call a new typeface into existence. This article examines type in its relationship to all other elements in graphic design.

Each issue of **INDUSTRIAL DESIGN** *delivers to the desks of designers and executives a definitive review of contemporary design ideas and techniques*

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is published monthly.
Subscription rates: $10.00 for one year
$18.00 for two years
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Whitney Publications, Inc.
18 East 50th Street, New York 22, N. Y.

New data on **CAMPCO** *thermoplastic sheet and film*

STYRENES S-540 Styrene—Rubber modified rigid alloy. High impact strength and dimensional stability. Low moisture absorption, good heat resistance. Vacuum form. Gauges .010″ to .187″ stock or custom sheets. Colors, translucent or opaque. For display, toys, trays, packaging, housewares, luggage, housings, cabinets, tote boxes.

S-300 Styrene—Similar to S-540 but with greater rigidity. Good impact strength.

S-1029 Tripolymer Styrene—High impact, tensile and flexural strength at extreme temperatures. Excellent chemical resistance and dimensional stability, low moisture absorption. Forms easily, machines readily. In smooth or Haircell grain finish, gauges .020″ to .125″, many colors. For luggage, housings, chairs, ducts, exhaust hoods, clock cases.

CELLULOSICS A-130 Cellulose Acetate—Strong and tough. Vacuum or pressure form. Machines well. In gauges .003″ to .060″ transparent, translucent, opaque, clear and colors. For blister packs, wraps, displays, toys, novelties, indoor signs.

B-120 Cellulose Butyrate—Exceptional strength in thin sections. Weathers well. Vacuum or pressure form, cut, blank, stamp, stitch, drill, punch. Gauges .003″ to .125″ transparent, translucent and opaque, clear and colors, stock or custom sizes. Easy to decorate by either lacquer or silk-screening. For blister packs, outdoor signs, displays, toys, novelties.

POLYETHYLENE PE-200 Linear Polyethylene — Rigid, tough, heat and chemical resistant with dielectric properties. Forms, machines, welds. Gauges .020″ to .125″ custom sheets and rolls. For housewares, containers, vessels, electrical products, toys, housing, packaging.

PE-100 Low Density Polyethylene — Low melt viscosity, excellent chemical and heat resistance. Stable under humidity changes. Vacuum form. Processes rapidly. In gauges .015 to .125″ gloss finish custom sheets and rolls. For housewares, packaging, toys, containers, form liners, electronic applications.

POLYPROPYLENE PP-300 Polypropylene—Impervious to stress cracking. Excellent dielectric properties, chemical resistance, rigidity, strength. Heat resistant to 300°F. Low specific gravity. Gauges .010 to .250 custom sheets and rolls, variety of colors. For chemical ducts and vats, fittings, electrical parts, sterile items.

NYLON N-106 Nylon — Heat form, machine stamp or die-cut. High melt viscosity, wide molten range. Excellent chemical and abrasive resistance. Self lubricating. Unlimited colors, 20″ to 40″ widths, gauges .005″ to .060″. For washers, grommets, gears, bearings, industrial glazing, packaging, food handling trays.

The range of CAMPCO applications is almost without limit. We would like to work with you in making the best use of these versatile materials. Write or phone today.

NOTE: See the Directory Section for particulars on Chicago Molded's unmatched custom molding services for plastics of all kinds.

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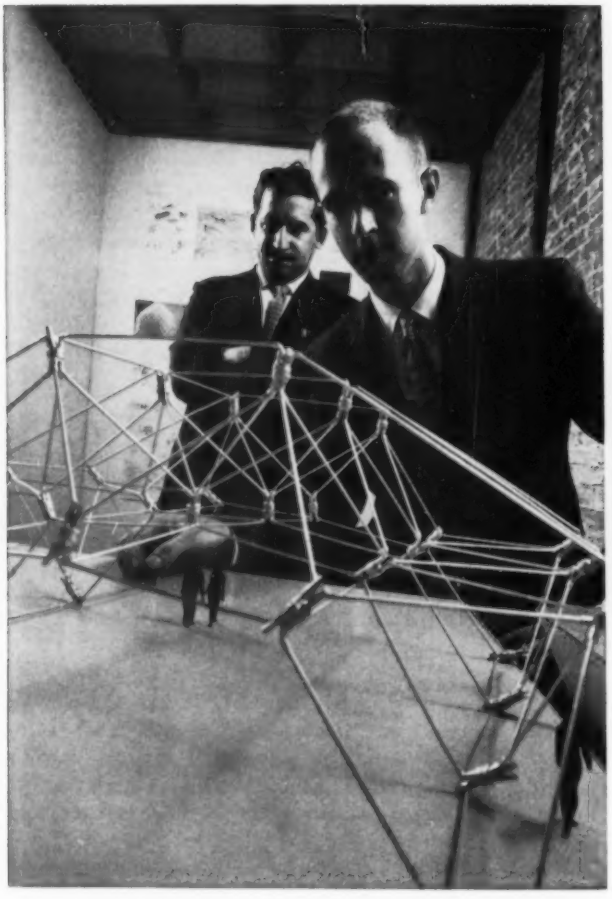
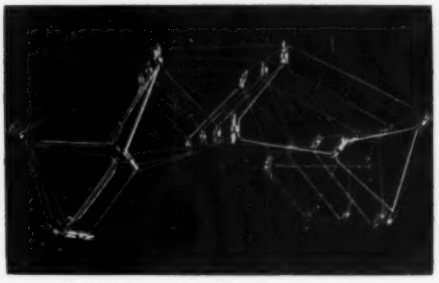


Student Van Reisgen (foreground) and director Carreiro study award-winning superstructure of articulated aluminum bases and telescoping aluminum tubing. Mechanically changeable in size and shape, it is shown collapsed (above) and fully open (below).



ALCOA
STUDENT
DESIGN
AWARD

HERBERT VAN REISGEN'S REMARKABLE ALUMINUM SUPERSTRUCTURE

has won him an Alcoa Student Design Award. His senior project was chosen as the outstanding aluminum design of the year by the Philadelphia Museum School of Art faculty.

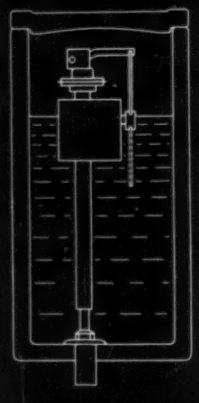
"Our awards committee selected this project as the most inventive solution to a large and important problem," says Joseph Carreiro, director, Industrial Design Department. "The design is still experimental, but the basic idea is sound and exciting. It opens a new avenue to the problem of changing spatial demands."

Aluminum tubes connect universal-jointed aluminum bases in this structure of almost unlimited dimensions. Given a flexible outer "skin," a finished building could be reshaped as needed by remote-controlled changes of joint angles and tube lengths. This allows the floor space to increase or decrease as needed.

Van Reisgen designed in aluminum, because only aluminum affords the requisite combination of strength, light weight and workability. His is the first in a series of Alcoa Student Awards intended to encourage and reward college seniors who already show great promise as designers.

ALUMINUM COMPANY OF AMERICA, PITTSBURGH 19, PENNSYLVANIA

DESIGNED IN CELANESE FORTIFLEX...



BALL COCK (Toilet Float Cup)

MOLDED IN FORTIFLEX FOR FLUIDMASTER, INC., ANAHEIM, CALIFORNIA, BY B.W. MOLDED PLASTICS, PASADENA, CAL.

Toilet float cup of Fortiflex is a radical design departure

Toughness, rigidity, resistance to corrosion, light weight—all of these were essential in the material to be selected for the float cup in Fluidmaster's unusual new and improved toilet ball cock. Fluidmaster decided that Fortiflex met all their specifications—and then some. Design of the new ball cock required an especially intricate molding of the float cup. Fortiflex molds easily in intricate shapes, and here it is molded all in one piece, including the runners that insure smooth riding up and down the shaft, thus also providing production economies. Yet the complicated float cup design contributes to an overall operating simplicity that is the crux of this ball cock's superiority.

Fortiflex "A" is presently available in four melt indexes developed to accommodate a wide range of conditions and applications of interest to designers and manufacturers. For more information and/or test quantities, just use the handy coupon.

Celanese® Fortiflex®

Fortiflex...a Celanese plastic

Canadian Affiliate: Canadian Chemical Company Limited, Montreal, Toronto, Vancouver.
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TYPICAL PHYSICAL AND CHEMICAL PROPERTIES OF FORTIFLEX

Properties of Fortiflex "A" Related to Melt Index

PHYSICAL PROPERTIES	ASTM METHOD	UNITS	FORTIFLEX RESINS A-20	A-70	A-250	A-500
Melt Index	D-1238-52T	—	0.2	0.7	2.5	5.0
Heat Distortion Temp. (66 psi)	D-648-45T	°F.	185	185	180	180
Brittleness Temp.	D-764-52T	°F.	—200	—180	—160	—100
Impact Strength, Izod (⅛" x ½" injection-molded bars)	D-256-54T	ft. lb./in. notch	23	18	13	3
Tensile Strength, Max., 0.2 in./min.	D-638-52T	psi.	3700	3600	3500	3300
Elongation, First Tensile Yield Point	D-638-52T	%	25	25	25	25

Properties of Fortiflex "A" Not Affected by Melt Index

PHYSICAL PROPERTIES	ASTM METHOD	UNITS	VALUE
Density		g/cc.	0.96
Refractive Index	D-542-50	n_D^{25}	1.54
Hardness, Shore D	D-676-49T		65
Stiffness	D-747-50	psi.	150,000
Water Absorption (⅛" specimen, 24 hr. immersion @ room temp.)	D-570-54T	%, wgt. gain	<0.01
Flammability	D-635-44	in./min.	1.0
*Mold Shrinkage, length		in./in.	0.03 to 0.05
width		in./in.	0.02 to 0.04

*Measured on injection molded tensile bar. Mold shrinkage depends on part design and molding conditions.

Celanese Corporation of America, Plastics Division,
Dept. 116-J, 744 Broad Street, Newark 2, N. J.

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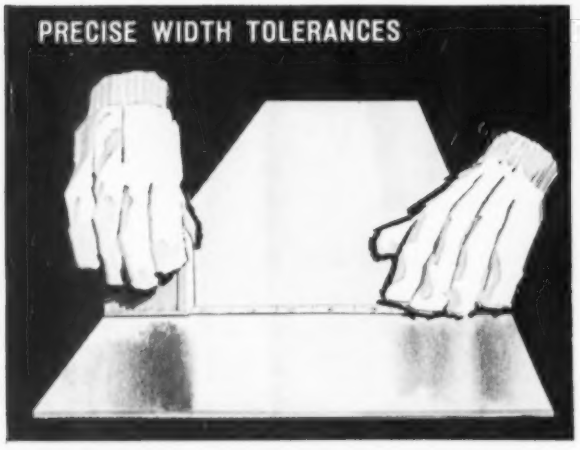
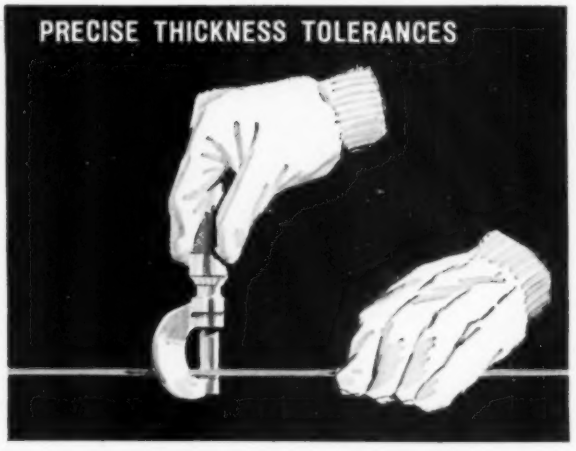
The finish you get on your Amerstrip order has been specially prepared to meet *your* product's needs.



If your fabricating machines require a special width strip that's just what you'll get with Amerstrip. USS Amerstrip can be produced in any width under 24 inches . . . well within exacting tolerance limits.



USS Amerstrip can be supplied in the thickness your machines demand. USS Amerstrip is fabricated on large production runs down to thickness tolerances as close as plus or minus .0005 inches.

American Steel & Wire representatives are experts in the fabrication and application of USS Amerstrip Cold Rolled Strip. Whenever you have a need or problem involving cold roll let these experts show you how USS Amerstrip can do it better. Get in touch with our nearest representative or write to American Steel & Wire, Dept. 9307, 614 Superior Ave., N.W., Cleveland 13, Ohio

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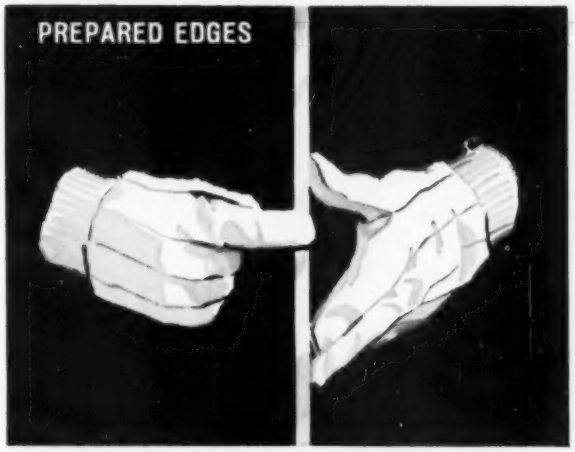
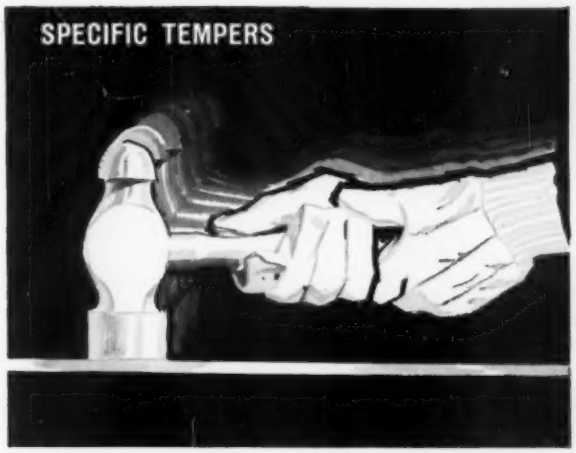
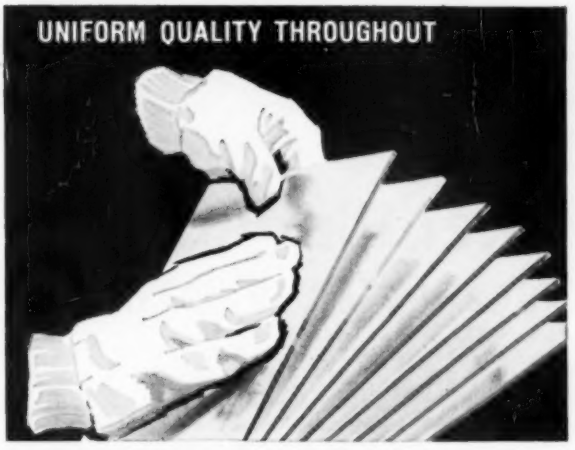


Because USS Amerstrip is produced in precision, order-size quantities, it can be supplied with the edge finish you need . . . square, standard, round, full round or bevel.



Whether your product must undergo a deep draw or other severe forming operation or require a special temper for rigidity, you'll get the exact temper you need when you order USS Amerstrip.



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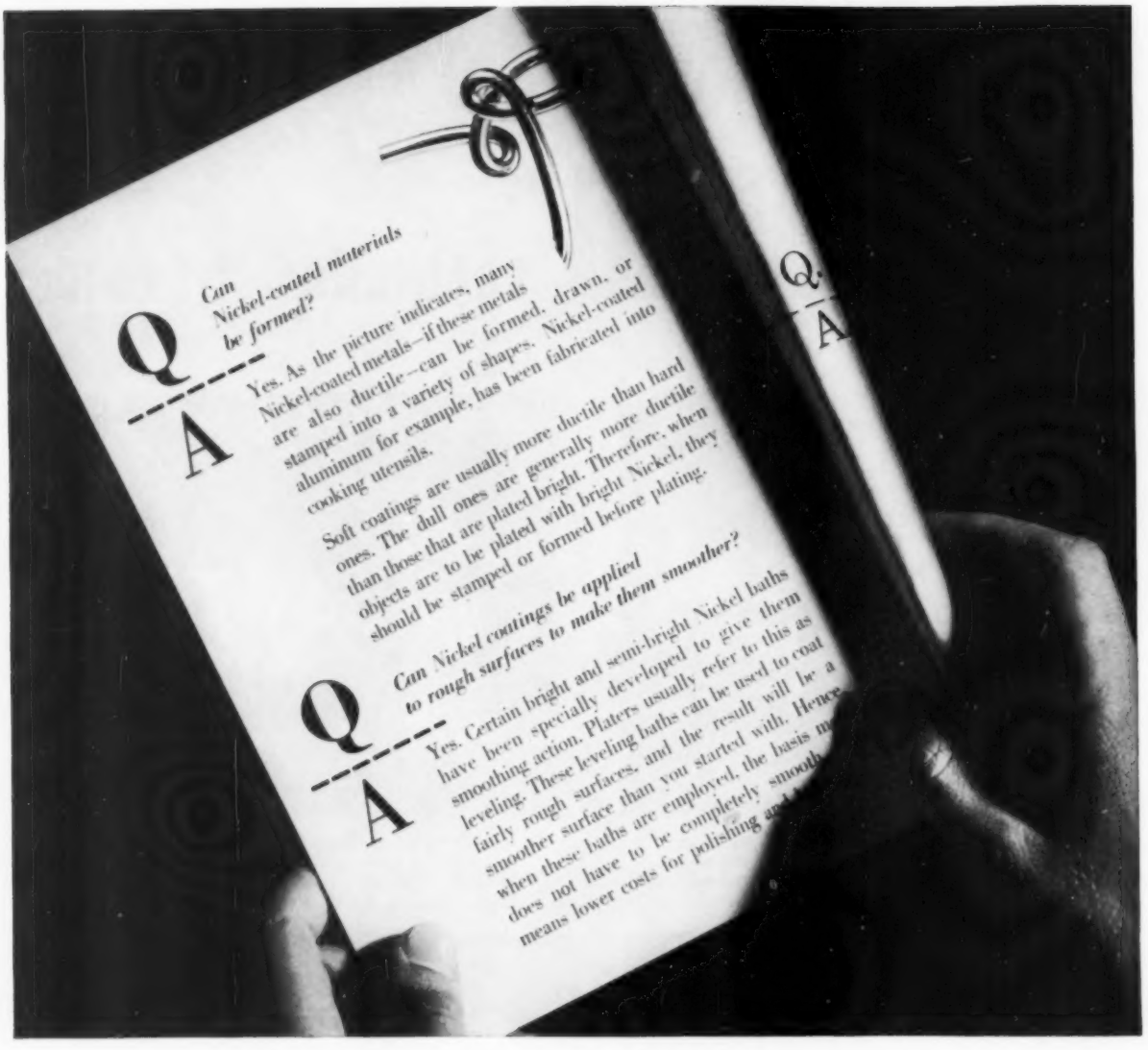
Q
A
Can Nickel-coated materials be formed?
Yes. As the picture indicates, many Nickel-coated metals—if these metals are also ductile—can be formed, drawn, or stamped into a variety of shapes. Nickel-coated aluminum for example, has been fabricated into cooking utensils.
Soft coatings are usually more ductile than hard ones. The dull ones are generally more ductile than those that are plated bright. Therefore, when objects are to be plated with bright Nickel, they should be stamped or formed before plating.
Q
A
Can Nickel coatings be applied to rough surfaces to make them smoother?
Yes. Certain bright and semi-bright Nickel baths have been specially developed to give them smoothing action. Platers usually refer to this as leveling. These leveling baths can be used to coat fairly rough surfaces, and the result will be a smoother surface than you started with. Hence when these baths are employed, the basis m
does not have to be completely smooth
means lower costs for polishing

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"Yes, but is it package design?"

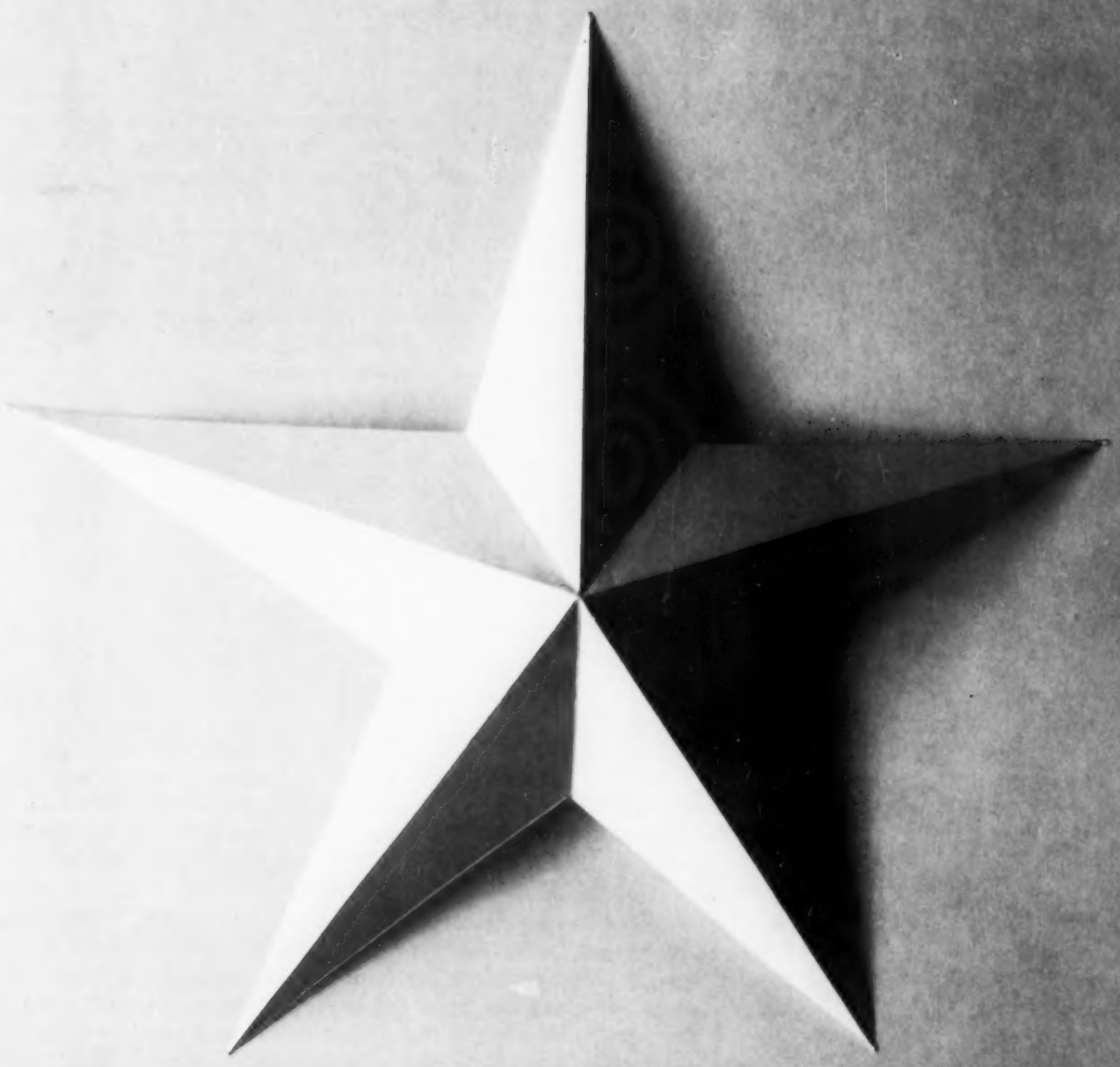
"Yeah, but is it Art?" Manhattan's Museum of Modern Art keeps countering that famous interrogative irritant with one of its own: "What isn't?" Sometimes this takes the form of design exhibitions, the most recent of which is currently running under the title "The Package." In it a curious variety of agreeable objects, including some packages, are shown to have an underlying unity: they are all in one place at one time. The show is handsomely installed and thought-provoking; but, like earlier design shows, it provokes fewer thoughts about the objects displayed than about the institution that displays them with so cavalier an attitude towards the public and towards design. If design belongs in a museum of art (and we would be the last to argue that it does not), it belongs in a display that is responsible as well as sensational.

For this is a sensational exhibition, raising the old soap-opera question: Can a humble onion sack from an obscure village in Holland find happiness in New York's richest and most handsome art museum? We mustn't be stuffy. It's fun to see the shifting values of art reflected on walls that bear Matisse one day and tv-dinner trays the next; and we guess there's a certain folksy delight in seeing, in our most widely publicized treasurehouse of modern painting and sculpture, a string of Nembutal just like Mommy used to take. And the Army shelter, the file cabinet, the vinylfilm suit, the typewriter shell, the portable radio, the telephone — these come off as imaginative three-dimensional puns on the word *package*.

Elsewhere in this issue our reviewer questions whether it is valid to display technological developments as though they were sculpture, and to show packages with the graphics carefully removed. Certainly it could be valid for a certain type of show. But since this one is supposed to "appraise packages of all sorts for their design qualities," the approach seems not only invalid but self-defeating. Reminiscent of the year's other MMA design show—in which a hunk of printed circuitry was included in a group of product designs (see ID, February, 1959)—the present exhibit stubbornly refuses to distinguish between designed objects and materials developments, between finished packages and fragmentary ones, between packages in the designer's sense (which happens to be pretty much of the public's sense) and packages in the parlor game sense. It is uninformative, confusing, misleading; and it tends to obscure the fact that package design does exist.

What the Museum says it wanted was to "perhaps broaden our ideas of what actually does constitute a package." Maybe this is too modest an ambition, too easily achieved, and superfluous at that. We wonder whether the museum-going public—accustomed to buying its outfielders, variety shows, and even ladies of easy corporate virtue, in "package deals" — especially needs to have its idea of a package *broadened*. What we urgently need, though, is to have our ideas clarified and deepened, and this the Museum is marvelously equipped to do if it wants to. Even in his new image, man does not live by breadth alone.—*R.S.C.*

BEGINNING A CAREER



Of the steps that make up a design career, none is more important than the one that crosses the line from student to professional and sets the course which professional life will take. The beginner looking for his first job and the employer looking for young talent may both find the experience frustrating. But because both are designers, they are equally concerned with the initial problems of careers in industrial design.

by Ursula McHugh and Ralph Caplan
Gregory Dunne and James Ward

The search for talent differs from the search for gold in that the former is mutual: talent *wants* to be found. Yet industry has no more pressing problem today than that of getting the right man in the right job. In the design profession the problem is made more intense by the flexibility of any given "right job," and by the extreme difficulty of determining precisely what makes a "right man" and the sort of education he needs. There is nothing alarming in the shortage of good designers. There has always been a shortage of good anythings-that-are-needed; it has always been hard to find men of a high level of competence. But, alarming or not, the difficulty of finding topflight designers has its roots in the difficulty of finding potentially topflight designers, and making it possible for them to realize their potential. Getting the right man in the right job begins with his getting a job. For this reason it makes sense to begin an investigation of Design as a Career by exploring the career opportunities of The Beginning Designer.

Who is the Beginning Designer, and what does he want? Well, like those good girls in that bad book, he wants The Best of Everything. More important—at *his* best—he wants to contribute to the best of everything. This may be indicative of his youth, but he isn't so young when compared to other recent college graduates. Chances are that he's past his middle twenties, that he has already had a number of jobs (some of them in design offices), and he may very well have come to industrial design from another discipline. Because of his age, his personal responsibilities tend to exceed those of beginners in other fields. If he is not married, he intends to be soon. This—plus the fact that, like other professional students, he may have gone into debt for his education—makes the Beginning Designer more salary conscious than, say, the Beginning Poet or the Beginning Engineer. However, salaries for beginners are low, and may vary in inverse proportion to the attractiveness of the job. Thus, in his search for money and good experience, often the Beginning Designer has, or *thinks* he has, to sacrifice one for the other. Generally he knows that he desperately needs experience. But does he know what kind of experience he needs, and where and how to find it? And—equally important, at least at first—what is he really prepared to offer in exchange? This last is a question raised by people in various areas of the design field. Here are some fictional but recognizable examples.

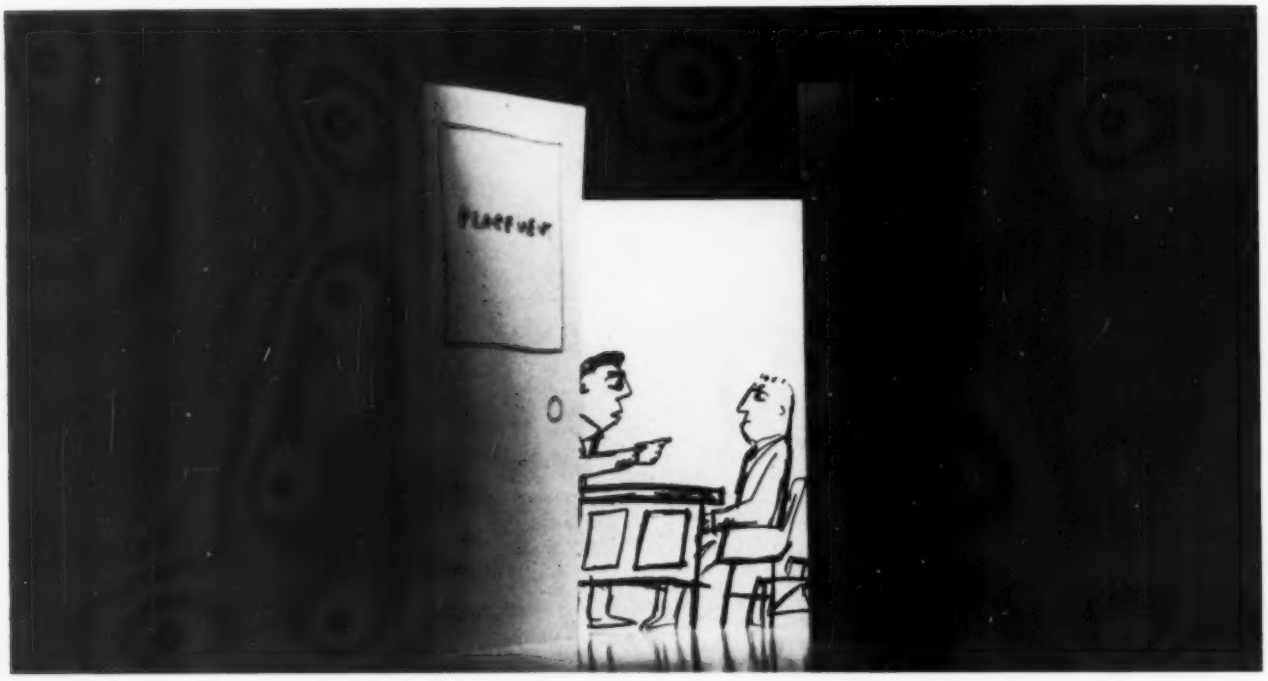
• David Icebox is the chief designer of the radio and tv division of a mammoth appliance manufacturing firm in Indiana. They are expanding their line and can use, among other things, a young, trained designer who can do good renderings and who might take on more responsibility later. The work might not be the most challenging at first, but Icebox feels he can compensate for this by offering more money than a beginner would get in a consultant office. He explains to candidates he is interested in that Indiana has a fine system of state parks, and that the factory is only three-and-a-half hours from Chicago.

• Christopher Bell heads Christopher Bell Associates, a nine-year-old consultant office with a staff of nine, six of whom are designers. For the past year he has been training a bright young man who, for $80 a week, has been doing mechanicals and renderings but mostly, Bell feels, learning. Now—just when he seems ready to pull his weight with a small office—the bright young man has announced that he is leaving to join Kenneth Hornsby Bates Associates, a much larger firm with more prestige, more fame. Bell has interviewed a number of recent design school graduates, but has found only one who seems capable of growing into the kind of designer he will need. He is not too enthusiastic, however, because he is afraid that job-hopping history will repeat itself, as it has been known to do.

• Thor Lipman does the hiring for Kenneth Hornsby Bates Associates. He has just hired a bright young man away from his friend Chris Bell, in order to fill a spot vacated by a young man who went to another office.

• Stanley Trueheart is a Beginning Designer. Twenty-five years old, he has just graduated from the Seattle Institute of Fine and Applied Art. He began at Seattle's night division, while working during the day as a blueprint draftsman. After two years of night school he became a full-time student, because by this time he knew without question that he wanted to become an industrial designer.

At Seattle, Trueheart was told that he might expect a starting salary ranging from $75 to $135, depending on whether he went to a small office or a large corporation, and depending on his record at the Institute. His record was excellent, and he was generally regarded as an outstanding student. Still, he wonders. . . . At graduation Trueheart listened carefully to the commencement speaker—described as "one of the founders of the profession"—explain that the industrial designer was the only professional prepared to knowledgeably plan the material components of the forseeable future. For Trueheart the forseeable future extends only as far as 9:30 tomorrow morning when he has a job interview with a designer he very much admires. He does not feel prepared to plan the material components of anything, and wonders if he really can . . . in fact, he feels downright ignorant. He has had jobs before, but they were just jobs. This, he thinks, is different. Now, at last, he is a professional, beginning Design as a Career.



Advice and arrangement characterize **THE SCHOOL'S ROLE** *in placing talent*

Designers *may* come from almost anywhere, but they are increasingly likely to come from design schools. It is clear — though not nearly as clear as it ought to be — that the most important thing a school can contribute to the career of any student is an education. We know that no one can take this away from the man who has it, but the man who has it often wants to know, on the eve of his graduation, where *it* will take *him*. Nobody knows, but everyone has ideas about it.

Admittedly what the school has to do with getting students jobs is, or should be, the least of its worries. However, if its role as an agency (a role not all schools assume) is trivial, it is likely to take on a great significance in June. More important, the school's ability to place its graduates depends less on its facilities for bringing employer and employee together than on its reputation for producing designers of a certain competence and, furthermore, of a certain type. Thus, while one office simply refuses to hire any beginners unless they have come from Art Center, another office reports that it cannot imagine an Art Center student capable of doing the kind of work it wants.

This may seem to prove that individual minds, dealing with the same material, can come to vastly different conclusions. What it actually proves is that manufacturers and design offices have found that certain schools, intentionally or not, tend to "service" them better than others.

Some schools *are* better than others, of course, but perhaps the important distinction is not between good and bad (or even between better and worse), but between training and education. Jacques Barzun made the distinction succinctly when he said that training provided students with skills and techniques that were useful in themselves, but that could not shed light on other disciplines. Education, on the other hand, provided a man with understanding that

could be applied to disciplines other than that from which it grew. Typists need training; designers need education.

While most employers insist that they want educated designers, their immediate needs are more likely to call for training. The beginning designer is not often used in ways that plumb the depths of his personal resources. One office head states bluntly that while only an educated designer can take real responsibility, beginners don't often stay with him long enough to assume real responsibility. He feels then that he is better off hiring "a competent trade school graduate" and getting his more important talent after they've been around awhile. This has created a great deal of confusion for students who find that — as one complained — visiting designers speak to them about the necessity of getting a broad background, and the unimportance of, say, rendering; but the same designers give hiring preference to the good renderer, without seeming to care much whether he can read, write or think.

There is also considerable confusion about what some employers mean by the lip service they pay to "culture." One designer recently bemoaned the fact that design schools didn't teach enough of the humanities. When asked in which of the humanities he thought young designers were least well grounded, he replied: "Client contacts," thus proving his point, and proving too that it applied to older designers as well. While he is atypical, his motives are not unusual: many designers think that the liberal arts are useful not because they equip a student to think but because they equip him to speak impressively at client lunches. Few design schools, therefore, seriously teach the liberal arts, a fact that may account for historian Eric Goldman's sour simile: "Teaching history in a design school is like teaching obstetrics in a nunnery." Obviously the school's challenge is to prove him absurd without sacrificing any of the skills they must give their students. In the meantime, a great many observers will agree with the statement attributed this month to Henry Dreyfuss in the British magazine *Design*, that so far in America there is no satisfactory method of training industrial designers.

Shortsighted shortcuts

Complaints by professionals often have to do with what they regard as the school's failure to equip graduates with an understanding of technology. And obviously both time and facilities sharply limit a school's attention to materials and fabrication processes, particularly if it feels a responsibility to the "broad man." Pratt's Robert Kolli defends this lack of technical depth by saying, "This is not the job of the design school. Our area is still esthetics — we teach students art and the humanities. Engineering is a four-year course, design is a four-year course. We can't give students both." President Karl Fink of the Package Designers Council criticizes the schools for taking a sort of unfair advantage of technological advances. There have been some outstanding technological developments over the past 15 years that give the designer new shortcuts in getting his work done, Fink says, but this is a mixed blessing. He thinks it is a mistake to teach these shortcuts at the school level because it means that new graduates never acquire the sound basic techniques they will need in the long run.

One school problem that can't be ignored is the students themselves. At an IDI conference last year, a panel on "New conflicts in U. S. design" openly raised the question of whether design schools attracted students of the calibre of other professional students. Some thought they did, but enough thought otherwise that the discussion drifted into a call for suggestions as to how design schools could attract bright students — the kind that medical and law schools seem to get as a matter of course. John Vassos asked rhetorically, "How can you expect bright kids to go into industrial design when they see what comes out of Detroit?"

But Detroit can't be blamed for everything, and much of the problem seems to lie in the fact that the profession is new, and its shape is ambiguous enough to attract a lot of people who don't belong. The flunkout rate at good design schools is alarmingly high and one department head at a large state university complains that in the case of his school it's because the department is a catchall for students who feel creative, and don't know what else to do about it. Montgomery Ferar, of Sundberg-Ferar, thinks that as industrial design grows in prestige, more good young people will be drawn to it. This is a process that could be expedited, he feels, if "the better schools — Harvard, Yale, M.I.T." — could be persuaded to teach industrial design courses.

Apart from their main business of teaching designers, what do the schools do to see that their graduates are placed? They advise, and they arrange.

Advice may be a matter of telling the student what to expect when he gets a job, or it may be a matter of telling him how to get one. A lot of such talk has to do with the old distinction between independent and "captive" design services, although teachers — like designers in general — are a lot less stuffy about the matter than they used to be. Most now admit that they can't generalize fairly, and at least one states that he is extremely anxious not to contribute to the stigma attached to the company department ("You'll be drawing hubcaps the rest of your life!") because he thinks it is important for the design profession

to try to build up internal company design staffs.

Nevertheless, differences are acknowledged and discussed. Joseph Carreiro, of the Philadelphia Museum College, feels that a small company that is taking its first hesitant steps with an internal design department (see case study, page 57 offers the young designer the challenge and opportunity of a design office. "He has to sink or swim on his own merits," Carreiro explains. "The guy looking for big company security wants no part of this job." And IIT's Jay Doblin claims that the small manufacturer ($10 million sales) offers the best opportunity for a designer with administrative talent to move towards a management position. But many educators agree with Eric Stearne, of the California College of Arts and Crafts, that the best bet for getting variety of both assignment and responsibility lies in the small consultant office, where personnel are likely to double in brass as designers and contact men.

Advice about getting a job may range in depth from the admonition to shave and to say "Sir" to the interviewer, to suggesting that the student spend several days in the woods appraising himself, and draft an evaluation of his professional aims and skills. One educator described his own private rules of gamesmanship that he passes on to the young: "I tell them to look for products designed by the guy they're talking too, and to say during the interview, 'Gee, that was a great job you did on that toothbrush handle, Mr. Jones. I hope some day I can design like that!' "

The most relaxed fellow

Design positions are not made in heaven, any more than marriages are. Like marriages they come about through looking, and often, like marriages, they are arranged. Sometimes it is the school that arranges them, and, depending on the school's own setup, this may be as formal as a bank loan or as casual as phone call to a friend.

Art Center has been known not only to advise a graduate to go to New York, and arrange for him to be interviewed when he got there, but also to advance him the money for the trip. But a Cranbrook graduate once declared, with a certain satisfaction, "All they give you when you're through is a road map showing the way out of Michigan."

Rhode Island School of Design has an active placement service, and solicits companies to come to the campus for interviews. Not all companies come, but a substantial number did last year. Of these there were only three that the placement service regards as enlightened and just in their recruiting policies: "All three of these gave the student a chance to speak out for himself," says placement director James Grudier. "He is encouraged to talk about design and is given every opportunity to show himself as the quality of young designer the company is looking for. Incidentally, for some reason or other, industrial design seniors have been the most relaxed about seeking a job—usually waiting until the very last minute."

Design schools that are part of larger institutions usually rely on the institution's general placement services. This is true of Carnegie Tech, Syracuse University, the State University of Iowa, Georgia Tech, and others.

However, at Georgia Tech, whose active two-man teaching staff simply hasn't got time to operate as a placement service, students state that they are usually interviewed by men who are looking for engineers, and most of the interview is spent in clearing up the confusion. "When it's all over, no job has come out of it," one student says, "but I've usually taught someone what a designer is." Does this mean that there is a bright side to the confused-recruitment picture? Professor Arthur Pulos of Syracuse University thinks so:

"Most of our graduates in industrial design, at least those who wish to, participate in regular placement services offered on this campus—the College of Liberal Arts and Engineering. In each case they schedule interviews with companies that interest them, whether or not these companies have indicated that they are searching for industrial designers. In many cases our students find themselves educating the interviewers about industrial design, and occasionally this leads to a position practicing design in an area in which it has not been practiced before. As a result of these interviews, a number of our people are placed each year, well before the end of the semester, in positions that are rewarding both financially and in the opportunity they offer. We feel that, in this small way, we are furthering the good cause."

This attitude is supported by Robert Alexander, at Michigan State University, who observes that, during the past year, a lot of small companies that had no previous experience with designers came to Michigan State and recruited. Alexander, incidentally, finds that most of his graduates intend to begin their careers in Chicago or Detroit, and that very few think of going to New York.

At the University of California, John Maguire says, "We have not arranged interviews, though I do not see any harm in it." However, he goes on to suggest that there may be some harm in it—or at least that there may be some good in not making things too easy for the student: "The experience of making their own contacts is, we believe, one of the best early experiences students will have. The student who goes directly into a job without having first 'sized-up' the field has missed out on many possible contacts." And another design educator said proudly that not only did his school

have no formal counseling or placement service, but they made a point of filing in the wastebasket any job announcements that seem dead-end or otherwise destructive.

Pipelines to the market

Faculty membership in the professional societies, participation in design panels, and attendance at trade shows all reinforce the school's pipelines into the marketplace. During the months before graduation, the chairmen of most of the better-known schools inquire around the country to see what jobs are available. The reputation of these schools makes the task easier, and some chairmen feel that the mechanics of placement must reflect as favorably on the school's reputation as any other aspect of its service. Therefore they give personal attention to it. "We're concerned with satisfied customers," says Joseph Carreiro. "It doesn't serve any purpose to place a man just to get him a job." At IIT, Doblin discusses job preference with his students, and tries to fit them into appropriate offices or companies. Unlike many educators, Doblin doesn't like to have his graduates "making the rounds," because he thinks it looks bad: mediocre students who have a hard time getting placed hardly enhance a school's reputation with their indiscriminate interviewing, and the good student who carries his portfolio from office to office leaves the impression that he can't make up his mind about what he wants. One department chairman personally calls the office in question, makes a frank admission of the student's weak points, and—if it is a student he thinks belongs in the job—praises him disproportionately. For example, he may tell an office head that an impressive project took the graduate less time than it actually did take. His rationalization for the white lie is that it serves a higher truth: "I wouldn't try so hard to place the kid if I wasn't sure he could do the job, would I?"

Sometimes it is the department chairmen's painful duty to keep a graduate from getting a certain job. "I don't bat 1.000 with my placements," one says, "but I've never tried to get a round peg into a square hole. I've even gone so far as to call an office and advise them *not* to hire a student I didn't think was right for the job, but who was determined to make a stab at it."

Understanding the personalities in various design situations is often helpful. Some time ago a company department head came to an eastern school to hire a man for a sensitive position. The head of the school knew that the prospective employer wasn't looking for the brightest kid in the senior class, because he was personally insecure and didn't want to be challenged by someone who might seem to know more about design than he did. So the school recommended a well-grounded but not terribly creative graduate who would complement the boss without scaring him. The combination clicked, and is working successfully today.

Since any school's ability to get a student a job is inextricably and happily tied to its ability to prepare him to do a job, the lack of standards in placement methods is more a matter of inconvenience than of danger. There are apparently no super placement offices operating in the industrial design field, and no graduates appear to land jobs through the efficiency of the school administration. In that sense, even at the most well organized schools, the beginning designer is on his own. Which — in the view of both educators and designers — is probably where he belongs.

The most effective way to contact companies has been the individual presentation of the prospective graduate to companies and/or design offices. This means a tremendous amount of work for my office, but it is rewarding work. Once the initial contact has been made with the company and follow-up begun, the student takes over. This encourages him to become more and more actively engaged in the securing of his job. This I believe to be of tremendous importance. I do not subscribe to the practice that a placement officer is a traffic man, whose duties consist of routing a student into interviews. I believe that a great deal is accomplished in searching for the *job for* the *individual.*

JAMES R. GRUDIER
Placement Director
Rhode Island School of Design

We have a project in the Senior year which has a direct bearing on personal presentation—a series of "quickies" (one a week), which are designs based upon data previously researched with considerable thoroughness by other students. The group assembles as the staff of the client. Three designers, picked by lot, make presentations of proposed designs to this group in sequence. The instructor is in effect "not present," and the student is on his own to handle the situation as it arises. The process reveals gross errors such as slovenliness of organization of ideas, lack of focus, miserable grammar, and lack of tact. Improvement is striking, and we think it produces better job interviews.

ROBERT LEPPER
Professor of Design
Carnegie Institute of Technology

Variety in both aim and strategy marks **THE EMPLOYER AS SEARCHER**

Anxious as the schools are to sell their product, there are customers just as anxious to buy, but what they want to buy is sometimes as vaguely conceived as "Good Design." The pensive gentleman above is dreaming of a wizard with a T-square; a composite of many employers, he would also like his prospective employee to know all there is to know about polyvinyl chloride-acetate, to understand the influence of Pico della Mirandola on Renaissance philosophy, and to be able to sell the Brooklyn Bridge to a seagull. "Creativity" is the word most commonly used, although, practically speaking (since beginning designers are usually hired for an immediate spot, and that spot is seldom one of genuine creative responsibility), the applicant's workaday drawing and rendering talents are probably the greatest immediate help to him. Donald McFarland's statement of what he needs in a beginner at GE is more specific then most, but it is fairly typical of what is expected of beginners everywhere. They should be able "to assist a more experienced designer by making modelshop drawings as well as final drawings to engineering. The beginner *must be a good draftsman.* He should be able to carry out minor design projects or contribute to major projects in close collaboration with other designers."

Great books for great clients

Probably the vaguest of the attributes the employer says he wants to see in a job applicant is "an understanding of Western culture." Some of this demand is rhetorical; if executives these days need Great Books, then designers must not be shown up as laggards. The public relations man for one design firm, dutifully repeating his employers' pious complaints about the lack of liberal arts in current design education, was asked if his employers attributed their own success to their comprehension of the sweep of

Western civilization. For an instant, candor, and perhaps some bitterness, overcame professional discretion, as the PR man glanced cautiously around and replied briefly, "They're slobs." Not all employers agree on why the liberal arts are important. Said the business manager of one design office, "Of course a designer should study the humanities. How else is he going to talk to a client?" Another took a somewhat broader view: "A liberal education, unlike a trade school education, provides an orientation in time and space from which you can think. A savage who can render isn't much use to us." (And not all employers believe in the liberal arts. Speaking of his reluctance to hire designers from one of the Midwest universities, an office head explained that the state required so many credits in the humanities that the students had no time to learn about design.)

But if he could draw like da Vinci and talk like da Vinci, the beginning designer still could not get a job with some firms, simply because he is a beginning designer and lacks the magic gloss of experience. Three kind of places are loth to hire him: the company whose work demands very specialized technical knowledge, the very small office that cannot yet afford the luxury of training anybody, and the prestige firm that can have almost anyone it wants and prefers to let someone else pay for the training. Consolidated Electrodynamics, in Pasadena, explains, "We hire only industrial designers of senior grade or men with degrees in mechanical and electrical engineering. Our design people must have a complete understanding of all the development work that goes into an instrument as well as a thorough knowledge of the intended applications." And it is not only manufacturers who feel that their work is too difficult for beginners. Consultant J. M. Little says flatly, "We do not in any circumstances hire beginners. The corporations are the only ones who can afford this and due to the peculiar development of this organization, which places economics, materials and production on a par with the psychology of form, line and color, you will understand our problem."

Michael Lax, whose 3-man office is 2½ years old, says he cannot afford to hire a beginner either: "A small office doesn't hire a designer, it hires a skill—draftsman, model-maker, etc. It's too time-consuming and nervous-making to hire a kid and expect a lot from him."

Why grab him while he's green?

But things are no better for the beginner at the other end of the scale, where, as the economists put it, them as has, gets. In this case, them as has a name gets the designers they want. Some firms see no need to grab a designer while he is green; they feel they can pick him when they want him. A spokesman for one of the best-known design offices said: "It might sound callous, but we know that we'll get the bright kids as soon as they get their apprenticeship out of the way at some other office. We can offer the money and the glamor without going to the strain of training them." And Raymond Loewy Associates makes no bones about the fact that they won't hire someone with no previous experience (they make an exception for people from Art Center, where, they believe, the training is equivalent to experience.) Like its smaller colleagues, the Loewy office feels it cannot afford a training period; it prefers job applicants who have worked for someone else for two years (Nevertheless, the office is deeply concerned about the high incidence of job-changing among young designers.) And the problem boomerangs: many small offices hesitate to hire beginners because they resent serving as farm clubs for the major leagues.

One way of getting experience that an employer will respect is a summer job in design. These are generally more easily obtained than summer jobs in other professional fields. Most of the larger design offices and departments hire one or two students every summer, and, in fact, a designer who interviews for one large firm explained that he had done almost no hiring this summer: the staff was overloaded with everyone's nephew. Design jobs, however, are not the most lucrative means of earning money for school: one recent graduate explained that the same economic necessity that had made him accept one of the first jobs that was offered him had made him work during the summers as a busboy, where he cleared more than $100 a week.

Employers have found summer jobs a good way of giving a bright young man a trial run, and also of establishing a kind of moral option on his services. Sometimes the job continues on into the school year. One design office, which wants to remain anonymous for fear of the pirates which lurk everywhere, has evolved a plan of this kind in cooperation with a design school. Each spring, the school sends up a batch of juniors to spend a day touring the designer's offices, and incidentally, talk about the possibility of a summer job. This gives the office a chance to look them over and choose the likeliest candidate. If he works out during the summer, he is invited to continue on a one-day-a-week basis during his senior year, and, finally, to join the office on a permanent basis after graduation. Several of the companies that award scholarships to design students hire the scholarship winners during the summer. Motorola, which awards two scholarships a year to the most talented juniors in the design department at the University of Illinois, has been following this procedure, and reports that most of its recent new employees have been students award-

ed the talent scholarships. General Motors has a somewhat similar arrangement at Pratt. Scholarship winners may spend the summer after their junior year in GM's styling department and, as a result of this experience, may even teach a no-credit course in automotive design (sponsored by GM and not by Pratt) to their fellow students during their senior year. After graduation, they will very probably be offered permanent jobs at GM.

Obviously, then, there are employers who are interested in the beginning designer, and in securing the best of the crop before the competition does. Aside from the fact that there are often minor tasks which it is uneconomical to pay an experienced designer to perform, many offices like beginners for the enthusiasm they bring to their first jobs, and for that very innocence which their critics call ignorance. The Henry Dreyfuss office prefers not to hire anyone with more than two years of experience, and Peter Muller-Munk says of the beginner: "We look to him for contributions due to his own ignorance, that is, a certain kind of freshness of approach, perhaps more radical thinking than we might indulge in."

Seen any good portfolios lately?

Consultant offices, in general, employ a more subtle method of recruiting than do company design departments. The larger design firms can be pretty sure that a good proportion of the available labor supply will eventually show up at their reception desks. When they need someone immediately, if the card file of applicants is not productive, the offices tend to rely on personal contact. The head will call faculty members he knows, or he may even ask another designer whether he's seen any good portfolios lately. And he can always drop the word among his own personnel, secure in the knowledge that job news travels fast within the younger design community. Members of design offices very often visit a number of design schools during the year, but if recruitment is their purpose, it is seldom announced; usually they have come to give a talk on Design As a Profession, and their inquiries about promising seniors occur casually, in post-lecture chats.

Companies, on the other hand, are much more open about their search for talent, and are much more likely to send recruiting teams from campus to campus in their search. Where the design school is attached to a university, however, the recruiting teams may be there primarily to see prospective engineers and management trainees, and design students have been known to spend half an interview explaining what industrial design is. Company recruiters who know what they want are usually brief and to the point in their interviews. George Beck, head designer of General Electric's Light Military Equipment Division, spends just one day at the schools he visits. "I can't see anybody except the top guys in each class," he says. "I just don't have the time to see the others." He hires on the spot because "they'd never get to Utica otherwise." There have been complaints about this sort of quick visit; one school placement director speaks with irritation of the representatives of one of the automobile companies, "who dash in, take a cursory look at portfolios, gulp a quick sandwich and depart without a further word, never bothering to say yes or no to the individual."

Applicants for jobs with companies must usually go through the standard processing the personnel department uses for all employees. Even where the company design director does the hiring, he will often call in the personnel department to help him make his decision. Carl Bjorncrantz at Sears, Roebuck uses the company executive battery tests for candidates that he is seriously considering. George Walker at Ford reports that both the chief stylists and the industrial relations manager evaluate the candidates. "The designers review portfolios and judge their artistic merit, while the industrial relations manager looks into the student's adaptability and his desire to work for Ford." The general opinion is that, to quote Jay Doblin, "It takes a designer to hire a designer." According to legend, some of the automobile companies used to put an applicant through days of filling in forms and submitting to blood tests before he ever set eyes on a designer. The recruits were so depressed by this process that they rushed out and down the street, to be signed up by the first designer they saw. Detroit learned its lesson and mended its ways, and now the blood tests come last.

The large and well-organized company recruiting program is atypical, however. For many manufacturers, the young designer is their first designer, and he pretty much has to find *them* and tell them who he is and what he does. Even if the design department is already established, it is often too new to have had much experience with recruiting, and its motives in seeking beginners are, quite simply, that that's all the budget will allow.

Employers west of the Hudson report considerable difficulty in luring young designers away from the New York area. Bachelors especially, to judge from the complaints of employers, are reluctant to settle down in the kind of tree-shaded Midwest town that has always, supposedly, been the American dream. One reason for their hesitation may be the loss of a wide job market. In a town with one or two design firms, the beginning designer knows he pretty well has to stick to the bird in the hand—the bushes are mostly back East.

STARTING A CAREER *means defining professional goals and reaching for them*

But what about the commodity itself: the young designer, who is, after all, at least as concerned as his school and far more anxious than his employer that his first job be the right job for him. What is his part in the talent search?

Not all students start looking for a job before graduation. Some are simply too absorbed in a senior-year project; others want to be sure their portfolio is absolutely perfect in their own eyes before they show it to anyone else. Obviously, though, even these are *thinking* about the kind of job they want. Although many of their teachers maintain a public impartiality, afraid to prejudice the student against what may be his only offer, and although they themselves sometimes feel it's bad luck to proclaim their preferences too loudly, the majority of students who can be persuaded to express an opinion plump for a small office where they think, they will be exposed to a variety of assignments.

For those who start actually looking during the school year, there are a number of courses of action open, ranging from the obvious — watching the bulletin board for announcements—to the subtle—ingratiating oneself with influential faculty members. Since in design so much of the employment process is conducted by means of the grapevine, the student's best assurance of having a better-than-average chance for a desirable job opening is to be respected and liked by his teachers.

Another course of action open in the senior year—and a course which the more foresighted adopt—is a letter-writing campaign. While nothing can be settled by letter (there are exceptions even to this) the student can at least be sure that his resumé is on file, and he can make appointments for future interviews. There are a number of directions this campaign can take, depending on what the student wants most in a job. He can write to manufacturers or designers of products he admires, he can write to de-

signers who have spoken at his school or are suggested by faculty members, or he can write to manufacturers and offices located in a single area. Big name offices, of course, receive the most letters. (Openings in these offices are not as frequent, however, as many beginners imagine—they often operate with a surprisingly small staff, and one young designer starting his first day in the drafting room of one of the most famous design firms in the world was startled to find himself one of a product section of five.) Other sources that beginners sometimes ignore, it has been pointed out, are the architectural firms, many of whom maintain separate product divisions, and the suppliers of basic materials, who often have large design sections. The ASID has compiled a list of offices and manufacturers which have openings for industrial designers; this, when used with the membership lists of the ASID, the IDI, and the PDC, should provide a good basis for preliminary inquiries.

The breadwinners

Both the ASID and the IDI national offices maintain informal—and free—placement services; there are also the two New York employment agencies that specialize in designers: the Muriel Feder Agency and the Helen Hutchins Agency (addresses on page 114 of this issue). The employment agencies, however, seem to be most useful, and most used, for special problems. The IDI and the ASID often have meetings of special interest to students—meetings where designers often keep an eye out for a likely young man to fill a spot coming up in their offices. The PDC has conducted several meetings completely devoted to the problems of the student starting to look for a job, and neither the subject matter nor the informal interviewing done after the meetings has been limited to package designing.

Beginners who have lived through the experience advise the job applicant who comes to New York to have enough money to maintain himself for at least three weeks. (The amount will vary with the scale of living he maintains—he will very probably find himself living in a style considerably lower than that to which he is accustomed. One contingent of girls from the Art Center finally resorted to snatching bread from restaurant tables and eating it for breakfast the next morning.) And appointments made in advance by letter can cut down time spent in telephoning and waiting in reception rooms. (Employers tend to be cold to the applicant who walks in cold.)

The young designer has two tools to help him in job-getting: his resumé and his portfolio. The resumé is by far the simpler to prepare, although interviewers report that many applicants come without one. For a beginner, the resumé will, understandably, be short, but it should contain certain essential facts like who he is and where he lives and where he went to school. The ASID provides a sample resumé, with blanks provided for employment history, location preferred—and including one space titled "List all hobbies." (It used to say "List only relevant hobbies.")

The most important item in a young designer's equipment is his portfolio. The inescapable fact is that his interviewer has very little else to judge him on, no matter how well-furnished his mind is. A number of employers tend to discount the importance of a portfolio, pointing out that there is no way of telling how much is original and how much represents the teacher's helping hand. John Ebstein, at Raymond Loewy Associates, used to teach at Pratt, and he has a story about the boy who walked in with a portfolio containing some of Ebstein's own renderings. (After the interview, he in turn showed the boy some pictures: the originals of the renderings.) But whatever the reason for the grain of salt with which the employer takes the portfolio, he is apt in the end to agree with Robert Kolli that "Offices hire a portfolio."

As far as employers' reactions are concerned, the only consistent thing about the portfolio—what it really is, what it should do, and what it does do—is the inconsistency of their opinions about it. One says he'd like to see a little of everything, another says he'd like to see just one project, "in depth"; one wants doodles, another wants presentation renderings; one likes them shiny, another likes them rough, and a third distrusts their lineage so thoroughly that he hires on instinct. (He points out that the shiny ones may reflect genius or year-long polishing, and that the rough ones may equally disguise intellect and incompetence.)

Donald McFarland at GE says he uses the portfolio only to judge craftsmanship: for whether or not the applicant is a good designer he relies on the recommendation of a faculty member he knows and respects. Bernard Grae, the Manager of Design for RCA, however, judges almost everything by means of the portfolio. He writes: "A portfolio reveals many things; the most important is a pictorial insight into the student's mind where he has displayed his best for all to see."

A student portfolio, naturally, will be made up almost entirely of student projects, but the majority of employers are interested in seeing what the student has done on his own—programs for the University Players, posters for the NAACP, or the Car of the Future because he likes cars. Extracurricular projects also relieve the monotony of many portfolios: some interviewers swear they can tell the name of the school and the year the student graduated from the first few pages of the portfolio. Another interviewer inquires pathetically, "Does anyone realize how boring it is

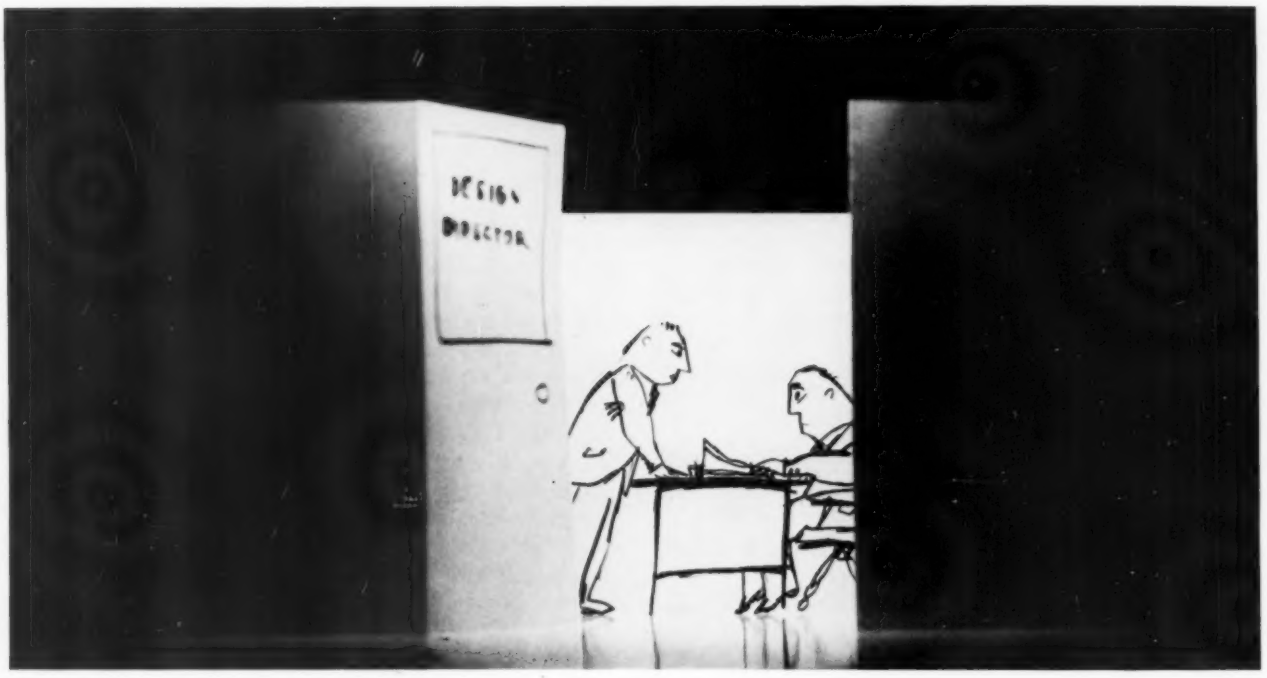
to know when you see a page of clock faces that there'll inevitably be a page of silverware on the other side?" One student reasonably points out that if the school defines the problem and the limitations very strictly, the solutions are likely to be similar. Pratt seems to be the school most often charged with this monotony; no interviewer, however, has denied the impressiveness of a Pratt portfolio. The Muriel Feder Agency refuses to send more than one applicant from the same school for the same job, simply because their portfolios will be too much alike. Even a designer who has been out of school a year or two is very likely to be still using his school portfolio—either he hasn't completed any single project, or his employer won't release the designs.

Packaging the beginner's work

The typical portfolio is a very large leather zipper case. One interviewer says "We feel sorry for the kids who feel they have to go out and spend $40 on their portfolio—we wouldn't care if they brought their work in wrapped in old newspaper." (Nobody has ever yet appeared with a newspaper-wrapped bundle, however, so the office has not actually been put to the test.) There are other physical forms the portfolio can take; the more experienced designers often use slides and a projector, and some students are beginning to adopt this method. Others mount everything on cards—they prefer the mobility and flexibility which this permits. Occasionally an interviewer is startled (but not displeased) to see an enormous model borne into his office. He will very probably be displeased, however, by valises bulging with all the rough sketches the student has ever conceived—and such valises have been known to appear. Graphics designers sometimes show short movies, and seem in general to produce more ingenious portfolios than do product designers, but for them the portfolio is not pictures of their work, it *is* their work.

What should go inside the portfolio? The concensus of designers—"an accurate reflection of the applicant's work and personality"—is not much help to the student confronted with a miscellaneous pile of his drawings and an empty portfolio. Most interviewers say they like to see some (*some*) rough sketches, by which, they say, they can tell how an applicant thinks. Others suggest more illustrations showing a single project carried through from the doodling to the model stage. These point to the Art Center as a shining example of this method: there, in the last year, the student prepares a case history of one redesign project to be included in his portfolio; starting with literature in the field and a photograph of the existing product, every step of the design process is carefully illustrated. Interviewers say they like some indication of how much time each project consumed, but they do not like long reports, which they feel they must, for the sake of politeness, glance through. Job applicants themselves often change the contents of their portfolios to fit what they think are the special needs of the individual interview: one applicant explained that when he saw manufacturers, he took out all the "impressionistic" drawings—that they would understand only the practical-looking, engineer-type drawings. If he's being considered for a specific spot, as many beginners are, and if he can find this out in advance, the applicant may be able to include evidence of his talents in that direction.

But a portfolio is also judged by the company it keeps, and here again opinions about the proper presentation of a portfolio vary wildly. One office says that they find the presence of the job applicant distracting; and are considering having all candidates leave their portfolios at the front desk, and call in the next day to learn the decision. Another office finds the *portfolio* distracting — they claim they're hoping that some day a young designer will walk in empty-handed and just talk; they'll hire him on the spot, they say. Employers see the presentation as a way of understanding not the portfolio but the applicant. They point out that an experienced designer does not need a detailed explanation of a student rendering, nor, they agree in loud accord, do they need the applicant to turn the pages for them. But what the applicant says about the portfolio often reveals his interest in fields tangent to design proper. Speaking of his dissatisfaction with design candidates, in spite of their generally good portfolios, designer Gerald Stahl says: "In a rough estimate, less than ten per cent of the dozens of just-graduated applicants we have seen this past year seemed to have an interest and training in engineering; even less than that used the vocabulary of 'merchandising' or 'marketing' or 'selling' in their conversations." Since employers must also consider the impression their designers make outside the drafting room, how the applicant presents *himself* is important. Raymond Spilman is very specific in outlining what he expects in a job applicant: "I expect him to wear a suit and a clean shirt, to be shaved, to have a necktie and clean fingernails — in other words to come to me as a professional, not as a college boy. He intends to represent me to my clients, and he should look it." Spilman also expects a general impression of maturity: "I want him to know what he can do best, even if I don't agree, and be able to show me examples. I want him to come in as an adult with something to say, something decided." But whatever the young designer has to say, interviewers agree, he should say it briefly — if he is going to practice his presentation in front of a mirror (as some do) he should plan on no more than fifteen or twenty minutes.



The story's climax comes with the job interview: **A DRAMATIC ENCOUNTER**

Armed with a portfolio, a resumé, an appointment (and a clean shirt), the young designer goes to a job interview knowing that the next twenty minutes or so — interviewers can rarely spend more time with him — will be decisive. Although, if they are seriously interested in him, employers will often put him through three or four interviews, if he fails to make an immediate good impression he will not be asked back for more exposure. Employers rarely hire on the spot; most of them place an extremely high premium on a candidate's potentiality for working harmoniously with a group, and they want to be sure he will fit into their official scheme before they commit themselves. "We don't hire prima donnas," one office explains, blaming the high turnover rate among beginners on temperamental differences between the employee and the office—differences which can be detected by more careful interviewing. Applicants, too, sometimes ask for more time to make up their minds, and offices usually understand that a young designer will want to investigate all the possibilities open to him.

The preliminary interview is not always conducted by a designer, even in consultant offices, where the business manager, or someone with an allied function, may do the first screening. And the interview does not always consist simply of the presentation of the portfolio. One job-hunter reports that he was asked in one office to fill out a resumé which turned into a design problem, and then into a kind of psychological test similar to those used by bonding companies to test an employee's honesty. Sundberg-Ferar and the design department of RCA, feeling that portfolios are deceptive, often give a candidate a trial assignment — in the case of Sundberg-Ferar, to be completed on the spot, if possible. (One reason for this, Montgomery Ferar says,

is that students spend much longer on their portfolio drawings than would be commercially feasible.)

Yes sir, no sir, thank you sir

The drama itself is short, rather informal — often determinedly so, for even when the interviewer himself is uneasy (some fidget nearly as much as the candidate), he has been through the same ordeal himself, and will usually do his best to unfreeze the nervous young man confronting him. Here is a typical encounter:

Sam Hall has been waiting for ten minutes at the reception desk of Phil Frome Associates. After he signed in ("Purpose of visit: Job Interview") he spent the first five minutes trying to decide how *he* would have designed the products in the glass cases set into the wall of the reception room, and the second five minutes in nervously zipping and unzipping his portfolio until the motherly smile of the receptionist embarrassed him. He is half-way through retying his shoelaces when John Ferguson (who was the first designer Phil Frome himself hired and now does most of the product hiring) appears, and leads him into a room that apparently, from its large table and larger potted palm, is usually the scene of client presentations. The interrogation begins.

Q. I see from your resumé that your home is in Wichita. How did you come to choose Bangor Institute, rather than the Wichita Museum School? (*Ferguson privately catalogs Wichita graduates as esthetes and Bangor graduates as technicians; he is already fitting this boy into a category.*)

A. Well, as a matter of fact, I was accepted at both schools, but Bangor seemed to give more technical training. (*Hall's faculty adviser told him to stress his technical interests, since Frome has a couple of heavy equipment accounts.*)

Q. What do you know about our office? Did you hear Mr. Frome when he spoke at your school last year? (*The last applicant asked Ferguson what sort of work the office did.*)

A. No, sir, I didn't have the pleasure of hearing Mr. Frome, but I've just finished a sweep of the northern part of the country, and I heard his name mentioned everywhere as a consultant. (*Hall has been staying with his wife's parents in Boston, while he re-worked his portfolio, and he stopped into the personnel offices of a couple of manufacturers, to see what the employment picture was. The personnel managers he talked to gave him a distaste for company work — besides, there were no jobs open.*)

Q. Well, let's see your portfolio. (*Ferguson thinks the boy is laying it on rather thick, but he is human enough not to be displeased.*)

A. This first page is just some quick sketches I did one afternoon. (*Watching Ferguson leaf quickly through the portfolio, Hall wonders gloomily how such a cursory examination can possibly reveal the tremendous thought and painful labor that has gone into his life's work.*)

Q. This is certainly different from the other Bangor portfolios I've seen this year. (*Ferguson hasn't discovered a single hand tool among the renderings.*)

A. As a matter of fact, as a result of some of the criticisms I've received since graduation, I took July off and redid a lot of the portfolio. (*Hall wonders whether he should have admitted this, but in moments of panic he tends to tell the truth.*)

Q. Some of this is work you did on your own, then? (*Ferguson is pleased at this evidence of initiative.*)

A. Yes, sir. (*Hall is gratified at this version of his efforts; he files it away for future use.*)

Q. What sort of work interests you most in a design office like this? (*Ferguson isn't particularly interested in the answer, but he does want to hear the applicant talk some more.*)

A. Eventually, I'd like to go out and find the client. I think I'd like client-contact work; I don't want to stay in the back room all the time. (*Hall thinks you don't get very far in the back room.*)

Q. I think you'd do very well in client work. (*Ferguson does think so, although he privately thinks it takes a young designer at least five years to learn to handle clients. He feels an obligation to be frank with job applicants, and he has on occasion delivered devastating criticisms. He doesn't find anything to criticize in this candidate, however — in fact he might work in very well as an extra hand on the new Deltor account.*)

A. I realize that I couldn't expect responsibility for a while — the first six months anyway. (*Hall is trying to reassemble his portfolio; drawings keep slipping out of their glassine envelopes, making him, he is sure, appear clumsy and ineffectual.*)

Q. I'd like Mr. Frome to see your work. We're not quite sure of our needs yet, but things are beginning to pick up in product design, and we're thinking of taking on one or two people, at least on a temporary status. Would you be able to drop in again tomorrow, say about 3:15? (*Frome makes the final decisions, but he and Ferguson usually agree on a likely candidate, and this one looks pretty good to Ferguson. The kid is married, though — that means they'll have to give him $10 more than the minimum. Still, his renderings are good, and that's what they need someone for.*)

A. Yes, sir. And thank you. (*Hall walks out much faster than he came in, not sure whether or not he has taken the first step in his design career.*)

What **THE EMPLOYER EXPECTS** *for his money is, usually, his money's worth*

Once an employer has captured the young talent he needs, what does he do with it? And when he takes a second look at what's inside the butterfly net, what does he think of it? Although employers agree almost to a man that the young design graduate is ill-prepared to face real life in a real office, few of them have any definite proposals for how the transition is to be made. Most assume he will learn by imitating his more experienced colleagues; usually one of them is informally assigned to keep an eye on him.

There have been a number of proposals for a formal apprenticeship period, many of them conceived with the assumption that a trainee is not worth a salary on the regular scale. Arthur Pulos at Syracuse University sees no other way to overcome the widespread resistance to hiring beginners; Gerald Stahl, proposing that industrial design be taught as a seven-year course, would add an apprenticeship period. "We would like to see this design 'internship' becoming standard operating procedure with universities and colleges. Let the students compete for apprentice-placement as medical students do."

These proposals see the apprenticeship as an extension of the school, set up in cooperation with the school. Trainee programs actually in operation now have been set up on the individual initiative of the employer. General Electric has just inaugurated such a program (page 58)—the pay, incidentally, is on the same scale as that of the regular designers. Carl Bjorncrantz instituted an apprenticeship program at Sears, Roebuck in the early 1950's, and, although he discontinued it soon after, still feels that a trainee program could make a valuable contribution to the profession. Bjorncrantz started the program because the number of design school graduates seemed to be increasing at a rate

far greater than the number of openings for inexperienced designers. Looking back on his experiment, he describes the program and why it failed: "Feeling an obligation to help at least some of these people to get a start—and hoping that other offices would do the same—we initiated a trainee program in which one or more recent graduates would be employed for a period of from six to eight months. They would work with, and under the direction of, our most experienced designers, participating in all phases of various projects as they developed. While salaries were not the equivalent of the experienced designers', they were a respectable base on which to build when the trainee period had ended and the new man went elsewhere to seek employment. This program was in effect for about two and a half years and was finally discontinued because we were the only organization in the Chicago area with such an arrangement, with the result that we were training people for anyone but ourselves." He would repeat the program, he says, if he were joined by other design organizations.

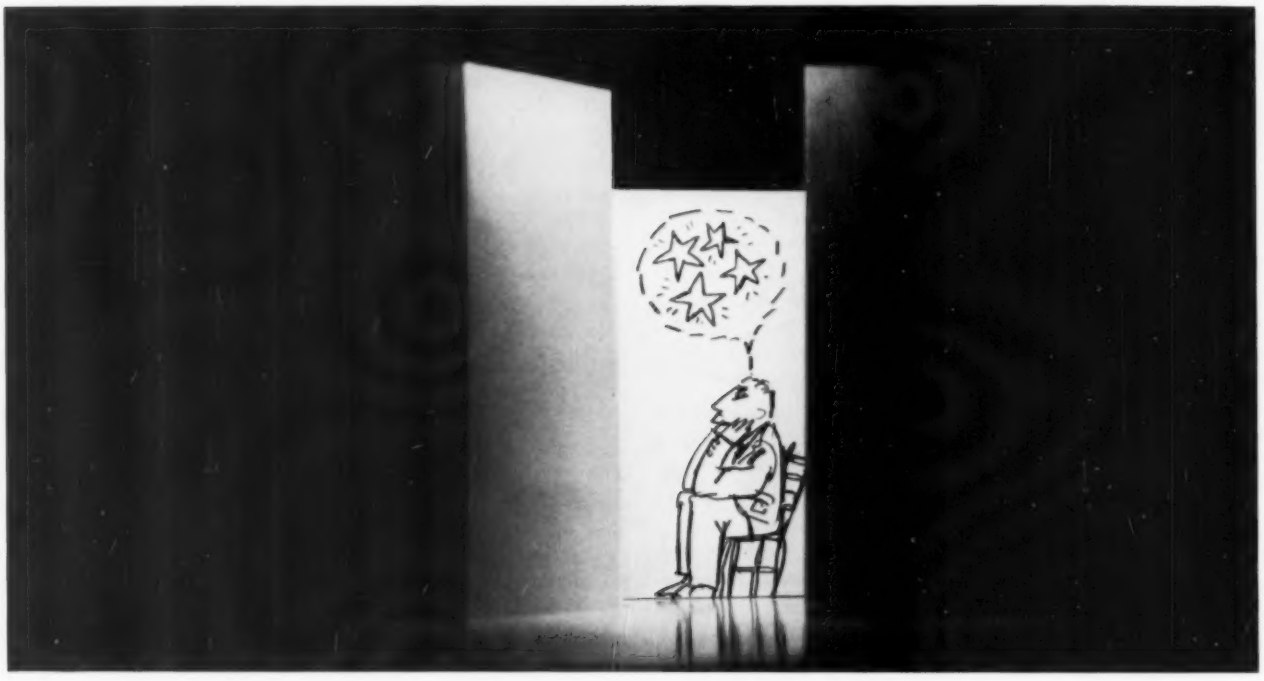
Lurelle Guild has for some time operated an apprenticeship program of his own devising—a program made possible by the particular structure of Guild's organization. He does hire beginners, but uses them only for research: testing products door-to-door and store-to-store. The second step is a period in a subsidiary organization, Dale Decorators, which does interiors of residences, showrooms, trains, etc. Next the beginner is given a supervisory position, to test his ability to work with other people. "At this point, in most cases," Guild comments, "they have hardly earned their salaries." Then an evaluation is made, and if the designer, who can hardly, at this stage, be called a beginner, receives a satisfactory rating, he is at last permitted to start work on product development. This may be years after he started. "In other words," Guild concludes, "we hire experts, not beginners."

No place for the restless

Dubious as many employers are about a beginner's capacities, what do they give him to do? Raymond Spilman's answer—"General creative design, model work, errands"—pretty well runs the gamut and indicates that a young designer may expect to help out with almost anything around the office. Anything except client contact, that is. Few organizations include beginners in client-designer sessions. At least, though, beginning designers normally have no right to complain that employers paint too rosy a picture of office life. The Henry Dreyfuss office warns the beginner that he will be doing the lowest and the dirtiest work in the office: lettering, rough drafting, etc., often on projects whose purpose he doesn't understand; and William Renwick says sternly, "I don't expect beginners to *be* designers. If they are restless to the point of rebellion, out they go. They are hired to do as they are directed."

A few offices have formal plans for a probation period followed by an evaluation. At Walter Dorwin Teague Associates, a two-month trial period is followed by a meeting with the supervisor and the director of personnel, for a general evaluation of the probationer's work. In cases where the beginner has been hired to help with one specific project, the end of that project serves as a punctuation mark, at which the employer must pause to consider whether he wants to employ the designer on another project. In most cases the annual or semi-annual salary review serves as judgment of the designer's work—a number of offices admit that they use the no-raise method to shake themselves loose from an employee they do not consider valuable. The beginning designer is, naturally, the first to be laid off, where layoff is necessary. However according to Smith, Scherr and McDermott, offices like their own (in Akron), located in cities with no floating labor pool, must be sure that they can support a man over a long period of time.

Even though, in "labor pool cities," employers rely on the pool for help with big projects, they are not happy with its floating quality. One of the commonest complaints about young designers attacks their instability. The mediocrity of much contemporary design, some say, can be attributed to job-hopping: revolving personnel make the work of one office indistinguishable from that of another. Why do they leave? Not always for money. "Curiosity," one employer explained. "Designers are a clannish lot, and when someone at a cocktail party tells them about an opening down the street, they're likely to drop in just to see what it's like." Another designer—tired of the procession of new faces through his office—thinks that beginners have been told so often that a large number of jobs represents wide diversity of experience, that they feel they owe it to their careers to keep moving. "And the corporations believe the same thing," he finishes gloomily, "they think the kid who's had a lot of jobs knows everything about design." George Jergensen, of Art Center, who believes with many employers that young designers leave a job just *before* they learn what the job is all about, urges his students to stay on at least three years. Others advise design students to look for a variety of experience. John Ebstein, who spends every Tuesday interviewing job applicants at Raymond Loewy Associates, has become philosophical about the cycle. The young men leave Loewy for another design office, he says, find the other office is just the same, go into business for themselves, nearly starve to death, and finally come back to Loewy. "And then," Ebstein concludes, "they're good."



The ambitious beginner turned employee asks **WHERE DO I GO FROM HERE?**

The young man above his taken his first professional step: was it taken for better or for worse? How did he make his decision? *Was* it a choice, or were there no other alternatives?

If the young man is typical of his senior class, he has made his decision fast. Perhaps because they feel they are entering a profession that is itself insecure, young designers are not apt to be leisurely about the job hunt. Nevertheless their goals should be clearer to them than to ordinary college graduates; when they entered design school they made a choice about the kind of work they wanted to do. For at least their senior year they have been rehearsing their lines in both a literal and a figurative sense — and they are entering a comparatively small field whose resources do not require long investigation. The very fact that they have a profession makes them — and sometimes the parents who have paid for them to learn it — feel that they should start practicing it immediately. Then too, on-campus interviewing and hiring, especially by corporations, creates a good deal of pressure to have a job by graduation, and many of the design schools report that half or more of their seniors are placed by the end of the senior year. At Syracuse, Arthur Pulos says, "If you don't have a job by August, you're dead." (The top people in each class are less susceptible to this pressure; if they're in schools at some distance from hiring centers, they feel secure enough to wait until after graduation to investigate the field.) Very often beginners are not youngsters — they have wives and families to provide for; even if they haven't, the end of four years of school is usually the point of lowest resources, financially speaking. And if they're job-hunting in a strange city, the typical lonely hotel room is a spur toward a quick decision.

Of course, not all design school graduates are fortunate

enough to have the decision to make, and this sobering fact is a deterrent to treating any job-offer too cavalierly. Every year there are rumors about tight job markets and stiff employer-resistance, but it is obviously not a rumor that last year was a tough year to get a job, and the year before was not a great deal better. It is difficult to determine statistically what the situation is; schools either haven't got, or won't release, figures on what proportion of their graduates have *not* found jobs in design, but all the evidence demonstrates that, where beginners are concerned, it is still a buyer's market. For the employer, this means he is offered a wider choice. George Walker at Ford, expressing his satisfaction with the crop emerging from design schools, says: "Although there are fewer jobs available in automotive styling than there were five years ago—or perhaps because of that—the calibre of young designers is, if anything, improving." But there is growing concern for that part of the crop that doesn't find jobs. Lurelle Guild says: "Frankly, I wonder where all these starry-eyed graduates will ever find a place. I assume the number will be dissipated by marriage, disappointment, and brighter outlooks in other fields."

What other fields? One of last year's graduates, just out of the service, says that one of his officers had been a classmate in design school, but found the job situation so tough he had decided to stay in the army. This is not to suggest that if you can't be a designer you join the army; you are much more likely to work in subsidiary fields like display houses, or, if you have the right training, you become a kind of off-beat engineer, or you simply sell things other people have designed (you're supposed to be good at this because you understand products.) One of this June's graduates on the West Coast went into technical illustration for defense industries—it pays better than product design, he reports. Another young man unable to find a job immediately has taken a position teaching design.

Money, money, money

But supposing the beginning designer has been offered several jobs: on what does he base his choice? The most obvious basis is money, although it is not necessarily the determining one. The beginner can expect to earn more in a company department than in a consultant office, more in product design than packaging, and more anywhere else than in New York. At the low end, some small package-design offices in New York pay $55 a week, and the design department of Cooper Union puts the average beginning pay of its graduates at $60. Most New York offices estimate their minimum beginning salaries to be $75, $80, or $85, and although some say that on occasion they might go as high as $125, the average is pretty close to the minimum figure. Many offices take into consideration the family status of the applicant and even whether or not he must commute to work. Outside New York, offices pay slightly higher salaries: a new man might start at $95 or $100. In some cases, at the end of two years with the same company, his salary may have risen 40 or 50 per cent.

Company design departments pay higher initial salaries than offices; the designer is usually put on the same scale as the beginning engineer, and companies report figures of from $100 to $115. Pay increases at a somewhat lower rate than in offices, however, again because big-company raises are at the same rate as for other employees. Nevertheless companies rely on fringe benefits and salaries as inducements (Whirlpool hands a job applicant a brochure entitled "Let's Talk Money"), while consultant offices are much more likely to read a young man a lecture to the effect that money isn't everything and that with them he will receive certain intangible benefits that money can't buy.

The choice between consultant office and company department, where it doesn't rest on money, may rest on security —a commodity much commoner in big corporations than in design offices. But a couple of designers who have recently taken jobs with offices after summer experience in companies, did so because they felt that security and money weren't enough. One didn't like the feeling of oppressive supervision that he said a huge corporation engendered; the other said he felt isolated, fighting his esthetic battles against an opposition armed with more logical and more solid arguments. On the other hand, there are beginners who feel they want the manufacturing and technical experience that a company provides.

When the choice is among consultant offices, the beginner will probably consider the likelihood of client contact. If he is thinking of establishing his own office (and some of them think of this early), experience with clients is essential. In a large office it may be as long as two years before a young designer is allowed anywhere near a client, but there are offices where a young designer is turned loose with a client almost immediately—and this may be worth a lower salary. A big office, on the other hand, may carry more prestige (it does not usually carry more money) and there are beginners who believe that this is important—usually to help them get a future job they may already have their eyes on. Designers graduating from West Coast schools often feel that a couple of years in a "name" New York office will help them get a better job back home.

But is his choice always among employers? How easy is it for a beginner to go into business for himself? The answer seems to be, not very (and is a subject in itself that will be taken up in a future article). One young designer,

In five **CASE STUDIES** *young designers are seen in a large company department, a small company department, and in large, medium, and small consultant offices*

several years out of school, defines the three essentials for an independent office: ability, money, contacts. (He himself has the ability, and, as a highly successful employee, is acquiring the money and the contacts.) Prudent advisers of young designers generally warn them against trying to set up an office on their own, and the fact that almost no one does seems to prove that it is, if not impossible, at least extremely difficult. But it can be means rather than end, according to a young man who has given up the struggle to maintain his own office, and is now working for a consultant. When job-hunting, he found that the fact that he had two years of client contact, plus the fact that he had a fat portfolio that was in every sense his own, meant both money and responsibility. He now gets a salary far higher than he could command had he begun design life in someone else's office.

How fast can you get ahead working for someone else? Russell Heston, who is senior designer of the product division of Donald Deskey Associates, has come pretty far in the three years since he graduated from Pratt. At school he had held a GM scholarship, and had worked there one summer, but he decided early in his senior year that he did not like the restriction of a large corporation. He had only one job interview with a consultant office: the interview during which Deskey hired him. What caught Deskey's eye particularly was one of Heston's student projects: an underwater restaurant in the form of a huge glass hemisphere sealed by an electro-magnetic current to steel plates sunk into a concrete floor. Heston got a day off from the job to go to graduation. (The next year, incidentally, Heston polished up his bubble and the Deskey office presented it to prospective clients, who have shown interest.) Heston's design projects have included hospital furniture, gas station architecture and equipment, and Charak's recent line of modern furniture. More indicative of his rapid rise within the organization, however, has been his gradual assumption of supervisory duties, to the point at which he now directs all the office's product designers—some he went to school with and others that are older than he. His case is, of course, not typical, but it serves as some indication of the direction which success can take.

The young man on page 52 who symbolizes this section has not yet thought any farther into the future than the first pay check. His plans for a career are probably as amorphous as those of the young men who appear on the next six pages. But if he is typical, he is as optimistic a blend of the romantic and the practical as the June graduate who said last week, "I know that business life will corrupt my ideals. But you have to expect that."

Freedom and a long trip are two rewards that a medium-sized office has given **Rodney Hatanaka**

Rodney Hatanaka discovered industrial design in his home town of Hamilton, Ontario, and it took him five and a half years to do it. Right after high school he became an apprentice in the art department of a printing plant, a job that he left after three years to join some fellow artists in "an informal, cooperative art studio." After about a year of that, he went to work for a small advertising agency, where the products he had to publicize distressed him so much that he resolved to do something about it: become an industrial designer. Having resolved to make a career of design, he sent away for school bulletins, and finally chose IIT for its Bauhaus tradition, which seemed to suit Hatanaka's own ideal of "serious design."

While at IIT, he had summer jobs with Latham-Tyler-Jensen and Dave Chapman. At graduation time, however, he decided to leave Chicago and come to New York where he felt he was more likely to find offices doing the kind of work he was especially interested in. Diffidently, he explains this interest as a preoccupation with the things machines can do to materials, and with the possibilities that technology offers to design. He had considered working for a raw materials manufacturer, where his primary concern would be "using material to create a healthy environment for people." But he was afraid this might be too limiting: "My whole world would be made of aluminum."

He picked two offices that designed products he admired, wrote to the two—Paul McCobb and George Nelson—for appointments, and came to New York in July. One of the designers who interviewed him recalls that Hatanaka simply came in, laid his portfolio on the desk, and stood quietly waiting for the verdict. The verdict, in this case at least, was "sensational, a portfolio that can speak for itself." Hatanaka himself apologizes for his portfolio, explaining that when he was a student he couldn't afford to buy a leather one, so he made his own of cardboard, the package itself serving as a working model of his design ability.

In the summer of 1958, however, even the best portfolios didn't guarantee jobs, and neither office had an opening. Hatanaka—living in a hotel because the "Y" was full—couldn't afford to stay on in New York; and he wasn't interested in making the rounds there anyway. He went back to Chicago, and the Chapman office—which didn't have a specific opening either, but liked his work—rehired him. For a few months he did graphics for Chapman's own promotional brochures. Then, in October, George Nelson offered him a job. Although it did not mean more money, New York was the place he wanted to be, and the job promised to include work he wanted to do, so the decision was easy. But the thought of his ingratitude in leaving Chapman was painful, and the only way he could bring himself to announce it was by writing a note and dropping it on his supervisor's desk.

Beginning designers in the Nelson office are left pretty much to fend for themselves. (The supervising designers have periodic fits of guilt about this, but get over it with the thought that they hire a man—beginner or old pro—only because they think he can do the job.) After a fifteen-minute explanation of the problems involved, Hatanaka was set loose on his first project—redesigning a line of fire extinguishers. Since the appearance in this case had to communicate function, he feels that the project was more than just a styling problem. His other major design project has been to help with the umbrella structure that the office developed for the American exhibit in Moscow. His contribution was at first limited to renderings, then he worked on models, and by degrees became involved in the design process. In addition to professional satisfaction, Hatanaka got a trip to Russia in connection with the project.

Hatanaka has no firm plans for the future, but he hopes to do some films soon. Although he believes that the money in design is to be found in managerial and sales duties, he has no aspirations towards these. He says he has never worried much about money or security, and sees no reason to start now.

In a large firm, **Werner Schier** *feels that he is doing what he would be doing anywhere: a little of everything*

Because the Midwest is "a nice place to visit, but I wouldn't want to live there," Werner Schier, 25, headed for New York as soon as he got out of Cranbrook. He had been assured by friends that, regardless of where he would like to live and work eventually (California or Colorado, probably), the New York working experience would be uniquely valuable. After four months in the product design department of Walter Dorwin Teague Associates, Schier is inclined to agree.

Schier got to the Teague office by a circuitous route that included simultaneous studies at the University of Chicago and the Chicago Art Institute, nine months in a Chicago hospital following an automobile crash, a job with an exhibit design house and, later, with a Florida architect, and finally, the Cranbrook Art Academy. Cranbrook, he feels, "tends to broaden you after experience has narrowed you." But broad though he may have been, he had no job when he came to New York and

no very clear idea of where he might get one. He arrived on a Sunday in June, and the following day someone told him about the Package Designers Council's "student evening" to be held on Tuesday: students were to bring portfolios, and professional designers would examine and discuss them. Schier wasn't especially interested in package design, but he was very much interested in having his portfolio seen, so he went. He expected to be out of place, and when he saw the other portfolios he felt like a misfit. But his portfolio attracted the attention of Walter Dorwin Teague (who had been steered to him by Mrs. Teague), who asked him to stop by the next day. He did, was interviewed by Mr. Teague and his associates, and offered a job, which he accepted on the spot.

"I've been asked why I took the first job offered me," Schier says. "Frankly, I didn't feel that I could afford the luxury of looking. It's tough when you're just out of school, and I'd had some experience with job-hunting in Chicago and Detroit. Last summer I tried to get a job with a number of Detroit design offices, but only one of them—William Schmidt—seemed really interested in the kind of design I was equipped to do. It was an office I really admired, but they had no openings. Finally, in August, I took a job selling fabrics. Later in the year, after school had started, the Schmidt office offered me a part-time job, but by that time I was too caught up in school to be tempted. Also I had a job—working in the kitchen."

Determined not to be caught in the same situation again, Schier worked very hard on a new portfolio before he left Cranbrook, and invested a lot of time and money in getting the best photographic presentation he could. "I had a portfolio when I graduated from the Art Institute, of course," he explains, "but it was 'schoolish' — you know, oversize with matted drawings. I wanted a portfolio that would look professional, and get me out of the student class. So I photographed it all, and changed it from book style to card style."

As far as the difference between a large office and a small one goes, Schier is convinced that, for the beginning designer, it's an academic matter. He does not feel lost in the vast Teague organization, points out that there are only five men in his particular department. As far as the work itself goes, Schier—who has a number of friends with smaller firms—feels that beginners are all pretty much in the same boat. He wanted to work for an office he respected, and he is doing that. He wanted to work for an office that would give him marketable prestige, and he is doing that. He wanted an office that would give him a lot of experience, and thinks that he is getting as much at Teague as he would anywhere.

"I've done a little of everything," he says, "and it's all been interesting." He has done rendering, some product styling, shop work ("We were short in the shop one day, and I've had a little experience in shops"), graphics ("Here I was able to contribute ideas, but I can't do finished art work. I never really learned to letter"), and cardboard model-making.

"One thing I've found," Schier says, "is that the kind of project a design office works on is not the kind you're likely to tackle as a school project. So I have to adjust my thinking accordingly. I have a lot to learn, and I want to learn."

Prize-winner **Herbick Van Reisgen** *finds that in a small consultant office there isn't room for routine*

The newly formed office of Renwick and Thompson didn't really need anyone at the time they hired Herbick Van Reisgen. "But," Bill Renwick explains, "he looked so good and came so highly recommended that we hired him anyway. We're not sorry."

Van Reisgen spent two years at a teacher's college before studying design at the Philadelphia Museum College of Art. As early as the tenth grade in school he wanted to be a designer because he associated the profession with automobiles. Also he had read Teague's *Design This Day* and Loewy's *Never Let Well Enough Alone*. But he was equally interested in teaching—a career he pursued until two years of education courses and the advice of his father (a high school assistant principal) convinced him that design was more to his liking. He feels, however, that the time spent at teacher's college was not wasted because: "Education and industrial design are very closely related. Both help people, but industrial design reaches more of them."

The last three months of his senior year Van Reisgen whipped his portfolio into shape and got in touch with manufacturers. "I don't know why I didn't try design offices then," he says, "but it's probably just that, since I had worked in factories during a couple of summers, I was naturally accustomed to approaching companies about jobs." He approached a number of them, got some slight expression of interest but no offers: "They didn't see what I could do for them that wasn't already being done."

After graduation, Van Reisgen came to New York and called on 27 offices in two days. The first day nothing happened. The second day he got two offers, one from the industrial design department of an architectural firm, the other from Renwick and Thompson. On the third day he accepted Renwick's offer, and spent the day sight-seeing.

Van Reisgen's portfolio was arranged to make a point about himself: "I tried to include projects that would show I was a thinker," he says, "because I needed a job that would require that I think. I'd die in a routine job. I once had one for a summer, and I nearly did die. I tried to make a portfolio that would attract only the kind of firm I'd want to work for anyway." Included in the portfolio was Van Reisgen's prizewinning movable dome structure (ID, September 1959, page 85). Was it the "think pieces" in the portfolio that got him the job? "Frankly I think it was a couple of drawings I had included," Van Reisgen says.

Van Reisgen's present work has already involved him in a variety of projects. First he had to do the drawings for an existing design in which changes had been made; then he worked on a

graphics problem, doing patterns and some lettering; next he refined a product that had already been brought to model stage. His fourth assignment was "purely creative"—he was told to think of a given product and draw his ideas. For a week he did nothing but this, with help from the partners, who looked at his work every couple of days, criticized it and suggested new directions. At present he is helping to design a low-cost instrument housing. Here, Van Reisgen's role consists in finishing drawings done by other designers, and in advancing his own ideas.

The financial rewards are pretty much in line with what Van Reisgen was led to expect at school. "This is an apprenticeship," he says. "No one who hires us beginners expects us to stay 40 years."

Alone and a stranger in New York, Herbick Van Reisgen lives inexpensively and somewhat austerely at a branch YMCA. "It's no more than a place to sleep," he says, "and that's really all I do there. I'd like to get a houseboat, and dock it somewhere on the Harlem river and live on that."

Terry Barner *gets the responsibility and experience he wants in the small design department of a big company*

The Monroe Calculating Machine Company's headquarters in Orange, New Jersey are the same buildings the company has occupied since it was founded early in this century. The tall sober outlines of dark red brick are softened by PR vines and lightened by the bright blue of the fire escapes that Monroe's young director of design, Richard Hollerith, Jr., chose, to the surprise of the more conservative members of the company.

Monroe's design department will be three years old next month. The company had employed industrial designers for a few years before that: first Sundberg-Ferar and later, because they wanted a designer closer at hand, Raymond Spilman. Hollerith was then working for Spilman, and when Monroe invited him to establish its design department, in fact to *be* its design department, he was somewhat concerned about losing the variety of assignment he had enjoyed in a consultant office. It took him more than a month to make up his mind, but he has no regrets now, and he feels he has lost nothing as far as variety of work goes. His department is responsible for the interiors of the company's sales offices throughout this country and abroad, as well as for the firm's calculating and data processing machines. In addition, the department is called on for minor design jobs, like the pin awarded to salesmen who exceed their quotas, and, of course, the fire escape color scheme.

A few months after he joined Monroe, Hollerith expanded his one-man operation to include a draftsman who had started with the company thirteen years before, as a trainee in the tool room. Later, as the managers of the branch offices became aware of the new service, Hollerith took on one of the patent draftsmen, who had architectural experience, to help with the office layouts.

Until this year, since there has been no outside hiring, the design department has had no hiring policy. In January they took on a Cranbrook graduate, Steve Monroe, whose family were the original owners of the company. He had already done a year of free lance work, mostly exhibits, and since he was hired he has concentrated on showroom designs for the branch sales offices.

The company's one real experience in hiring a beginner was with Terry Barner, who was a senior at the Philadelphia Museum College last fall when Hollerith went down to visit a morning seminar. (Hollerith graduated from Philadelphia himself, and admires its methods and its faculty.) When he had finished explaining his department and its work, Barner said he had liked what he had heard, and asked if he could stop by after graduation. What attracted Barner to Monroe (and what made Monroe feel that Barner was qualified for their kind of work) was his senior thesis on human engineering and his interest in Monroe's type of product. (And since Barner intended to be married right after graduation, he was anxious to get to work as soon as possible.) He came up to Orange for three or four interviews, while Hollerith persuaded the company management that the design department needed to expand, and started work at the beginning of July.

Barner remembers his first day on the job as a particularly satisfying experience. Hollerith showed him one of the company's calculating machines and asked him how it could be improved. This was the sort of thing Barner was used to doing at school (Philadelphia often undertakes the redesign of actual products as a classroom exercise), and in a sense his work at Monroe has been a kind of continuation of his work at school. Since he started, he has been working on the redesign of a calculating machine very like the one he criticized the first day, suggesting changes that are for the most part minor: eliminating visible joints and screws that, he feels, interrupt the design, experimenting with different values of grey, and changing the shape of the controls to better indicate their function. He first made a number of rough sketches involving different degrees of change, and is now working on a clay model to be shown to management in the near future. His more radical designs, which involve keyboard changes, will have to wait for the next general retooling, since they involve major mechanical changes. (Furthermore, keyboard changes must be field tested and approved by the sales and service groups.) This is going to remain a constant problem at Monroe: the mechanical complexity of this kind of product makes fundamental change very expensive and consequently rather rare. There is also a certain sameness attendant on designing products very similar in character, and that character comparatively conservative.

In contrast to these limitations, there are definite advantages to designing for Monroe, and the greatest of these is Hollerith's attitude toward the beginning designer. Hollerith feels that a young man just out of school is the ideal person to design for a company,

especially for a company in which the same design problems occur again and again, and where the experienced designer's capacity for evolving new solutions becomes blunted by repetition. With the expansion of the department, more and more of Hollerith's time is devoted to supervision, and Barner finds that a major part of the actual product design falls his way. The design department is largely on its own as far as direction is concerned: although the designers interview the sales managers for opinions and suggestions, the company's market research has not been of any particular use to them. The whole design staff enjoys considerable freedom, and finds that resistance to change is in the region of technique rather than appearance, and the designers do not regard management as an opposing camp. Barner's opinion, based on his four months of professional life, is that he likes his job, and if he should change, would go into a similar department in a company making a different kind of product.

A well-organized apprenticeship gives **Chris Carver** *the training he needs to work in a large company department*

To the design students who heard about General Electric's new trainee program —and GE went to considerable effort to make sure they heard about it—it sounded as though, in a cold, unfeeling job world, someone wanted to give them the experience no one else would hire them without. To the GE design heads, the experiment represents an opportunity to secure superior candidates and train them in every phase of the company's industrial design operation. To Chris Carver, Pratt '59, one of the two trainees with which the program was begun, it is proving to be a thorough and stimulating initiation into professional design.

GE has for some time had a trainee program for engineers, so there was a certain tradition on which to build the industrial design program. However, GE has also experienced the problem of losing its trainees, once they were trained, to other companies. To remedy this, Donald McFarland, the manager of design at GE in Bridgeport (radios and small appliances) continually makes surveys of salaries in both company design departments and consulting offices, and adjusts pay at GE accordingly. He doesn't worry now about losing his young designers to pirates, because: "They can't beat us wage-wise."

The office has in the past hired beginning designers (although this is neither regular nor frequent: Bridgeport has hired only one student every three years or so), and if an immediate need arises, will continue to hire beginners for a specific spot. (The company hopes it will not succumb to the temptation to move a trainee into an empty spot, and therefore the program includes the condition that a trainee cannot be switched to regular status in less than a year, or before three assignments have been completed.) Trainees are not hired for either a specific spot or even a specific division of GE: they will spend four months at each of the major divisions (Small Appliances, Large Appliances, Hotpoint, Electronics) with perhaps some time at the smaller divisions. At the end of the program, the trainee and his supervisors will choose which division he will settle down in—if not for life, at least for a relatively long time, since attrition is low at GE, and its designers tend to stay put.

Perhaps the factor which most clearly distinguishes the trainee from the beginner hired on a regular basis is the fact that the trainee's work is not charged to an account. (Procedure at GE is very like procedure in a consultant office because of the variety of products the department is responsible for.) He and an experienced designer are assigned to the same project, and arrive at their solutions independently but concurrently, so that while the company is "covered" the novice is acquiring experience in carrying design responsibility. This means that the trainee may be given more complicated projects than would be entrusted to him if the company were banking on his solution alone. At Bridgeport, where most projects are one-man jobs, a new man is usually given a clock to work on—the company makes a line of 50—and if the beginner's first effort isn't brilliant, there is enough assistance from experienced designers to make it acceptable. Carver has already designed one radio and is at work on another. Although he must work within the limitations of the actual project, the company urges him to be more "creative" than he might have the courage to be if his work weren't being paralleled on the other side of the partition.

Because he graduated from Pratt burdened with a wife and baby Carver almost didn't get the job. Not that GE is against family life, but their branches seem invariably to be located in parts of the country afflicted with severe housing shortages, and department heads were weary of waiting six months for a new man to find a house to move his family into. And since a trainee wouldn't spend more than four months in any one city, GE was afraid that Carver would spend his two years in a continual househunt. When, after a couple of interviews and some soul-searching, the company told Carver they had decided against him, Carver countered with a proposition: he would buy a trailer and bring his housing with him. GE accepted his solution, and Carver has spent the last four months in an after-hours design problem: tearing out the inside of the trailer and redesigning it to his own specifications. (For the result, see picture at left.)

Carver had graduated from Princeton, with a philosophy and psychology major, before going to Pratt, where he finished in three years. He feels that the liberal arts background helped him at Pratt and is helping him at GE, primarily in the area of consumer research. He was one of eight faculty-recommended students interviewed for the job. The portfolios, says McFarland, who interviewed Carver and is his boss for his first period, were used mainly to evaluate craftsmanship: "In actual practice at GE we seldom show renderings and we work mostly with mock-ups." Carver, however, had spent a great deal of time and thought on his

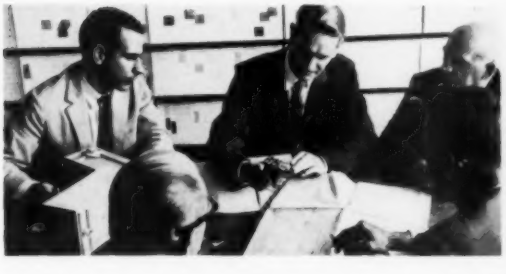
portfolio, redoing it three times until he was satisfied with it.

Although Carver has been called on by all the account designers (supervisors of subdivisions) for help with a number of projects ranging from photography to a color survey, his primary responsibility is to his particular assignment, and to his immediate supervisor, William Donnelly, the account designer for radios. The department tries hard not to swamp Carver with minor tasks and errands; although each division is responsible for planning its trainee's time, the one principle all the GE design managers agreed on was: "Let's not use the guy as a flunky."

Carver's first completed project, a shirt-pocket transistor radio, is now in the stage of cost studies and engineering drawings. It will be judged by the same standards that are applied to the model executed by the more experienced designer, and has an equal chance of being put into production. He is now redesigning GE's low-end table radio, to meet rigid cost specifications and using the existing chassis. As with all the regular designers, when his model has reached an advanced enough stage, he and the account designer meet with the engineering department to iron out technical problems. Carver makes his own cardboard models, and when he feels ready, can go to the modelshop to have a finished model made. He interviews vendors and specifies the materials for his own projects.

Carver operates with perhaps more freedom than most beginners in large design offices or companies, but his work, like that of all the GE designers, is very carefully evaluated. The department has a rather elaborate organizational structure, with precisely defined levels of salary and responsibility. Each year the department manager fills out a four-page form, with a long list of questions on every conceivable aspect of the designer's work and professional personality. Each aspect is evaluated (Excellent, Good, Satisfactory, Poor), and the designer's final score (which is explained to him) determines promotions and salaries. McFarland meets with his department every other Monday morning for general assessment and planning, and spends a major part of these sessions in emphasizing the amount of time it has taken to turn out each project. As in a design office, the supervisors are extremely conscious of hourly costs of their projects, and GE expects its top-rated designers to work quickly.

Carver, of course, has no idea yet which of the GE branches he will ask for as a permanent assignment (when he settles down, he intends to convert the trailer into a studio), but he has found the initial part of the program an extremely stimulating experience. GE is also pleased with the beginning of its experiment, but will make no predictions about the number of trainees it will acquire next year.



Above, Carver and his supervisors check his model with the engineering department. Right, Carver meets with Don McFarland.

CONTEMPORARY DESIGN TRANSFORMS CAMPING WORLD

Unnoticed by most city dwellers, a design revolution has taken place during the past five years within the green world of the camp site. In the vanguard of the revolution is designer-artist Bill Moss, who has introduced unique tent designs for the Nimrods and startlingly cheap disposable equipment for the fledgling.

The big, 12'-by-12' Para-Wing (left) and the Wing Tent (below) are both manufactured by the Pop-Tent Corporation. The graceful paraboloid Para-Wing comes in bright red and white, or in yellow and white. It may be simply tied between trees without poles or it may be set up with two three-section aluminum poles and two stakes. Of tough, water-repellent army duck, it weighs 19 pounds, and its two low sides give protection from rain. It retails for $74, or, including four nylon screened sides, for $139. Wing Tent (below) has no inside poles or framework; two outside poles plus paraboloid roof equalize tensions, hold tent stable in winds over 50 mph. Zippered storm flaps can be raised from inside. Retails at $169.50 *(9'-by-9') and* $199 *(11'-by-11').*

There's a new look in camping which unites bright colors with unusual materials in bizarre shapes, and one man behind the new look is William C. Moss, artist, photographer, and designer of a whole line of outdoor equipment. An expert in outdoor living who has fished in the trout streams of Alaska and hunted in the wilds of Canada, Bill Moss got his first incentive to create outdoor designs five years ago while illustrating wild life for a Ford Motor Company magazine. The assignment took him on location in the Chapleau wilderness of Ontario where Moss ran into trouble every time it rained. Since his tent took half an hour to erect, he often found that both paintings and photographic equipment were ruined by the time it was pitched.

Back in Detroit, Moss began casting about for new ideas in tent design: what he wanted was a lightweight model that could be thrown up in a couple of minutes. But since extensive investigation indicated that there had been practically no changes in tent design since the Civil War, Moss started out with a fresh drawing pad. The first design to come out of his efforts was the Pop-Tent (page 62), a two-man shelter supported by Fiberglas ribs outside its canvas body. Unlike the typical pup tent, which has been the bane of Boy Scout and army rookie for years, Moss's innovation springs into shape in seconds, requires no poles, rods, ropes or stakes. An independent company called Pop-Tent Corporation (in which Moss has no interest) was formed by a group of Clinton, Michigan businessmen to manufacture the product, and has expanded its line with other Moss tent designs as they have been developed over the past four years.

In 1956, when Moss helped originate the Ford Motor Company "station wagon living" program to encourage station wagon camping and promote Ford in the process, he immediately began to consider a whole line of innovations in outdoor living. He soon realized that the variety of canvas tents which he had developed for serious campers might be transformed into far less expensive items for a new mass

FOR SERIOUS CAMPERS

The remarkable Pop-Tent, Moss's first tent design, erects in 90 seconds, weighs 13 pounds, and fits into a 30-inch carrying case. To erect, you assemble sectional Fiberglas ribs into tent tunnels, grasp handle at top, push down, turn locking cap, and lift. Working on umbrella principle, it springs immediately into shape. Its seven-foot diameter affords sleeping space for two adults. Nylon mosquito netting with zipper opening and sewn-in ground cloth provide protection from insects and snakes. It is made of boat sail drill which has been treated with a non-wax water repellent, and comes in either pearl grey or red. Front storm flap can be extended with two poles to make a sheltered entrance. Pop-Tent Corporation retails this model for $75 in grey and $87.50 in red. They also make Moss-designed hunting blinds, ice shelters, and a seven-lb. sleeping tent, based on same principle.

market of families who have been discouraged from camping by the high $300 initial investment for family camping equipment. Looking for a means of creating such a low-cost line, Moss turned to several paper companies to investigate the possibility of fabricating his tents in one of the new paper-base substances. The result was a new line of imaginatively shaped tents (right) in Kaycel, produced at a fifth the cost of similar canvas tents. Kaycel is a non-woven scrim cellulose, developed by Kimberly-Clark Corporation, which combines the strength and feel of conventional cloth with the economy and convenience of a disposable material. When no manufacturer would take on the job of fabricating the tents in time to appear in Ford's road show review of outdoor equipment, responsibility was originally assumed by Corporate Research, a product-planning group which now also acts as Moss's business manager. The most expensive tent in the group retails for just over $10, and Moss and his staff have developed a line of equally cheap accessories (page 64) to go with them. Now, for less than $50, a family of four can be outfitted with throwaway sleeping bags and a tent. This means that if a family discovers it doesn't like camping, it can charge the investment to only one year's vacation.

Last winter Moss took his disposable sleeping bags, tents, and beach gear down to Florida for six weeks of rigorous testing. He feels that all passed with honors. The Kaycel Pop-Tent, for instance, stood up well even after a long

FOR ENTHUSIASTIC AMATEURS

Moss has put his tent-designing skill into a second line of tents now manufactured by several companies. All of these low-cost models are made of non-woven cellulose materials.

1 *King Arthur, like other models, is a back-yard play tent. To erect, six corners are staked down, then three slats are inserted in top, criss-cross, so that center holes are in line. Center pole pin is placed in slat holes and tent is raised. $9.98*

2 *Bird House has a front panel of rigid Fome-Cor, a foamed polystyrene plastic sandwiched between Kraft paper. This panel helps support whole tent. $4.98.*

3 *Cabana tent is erected by assembling two top cross arches and slipping ends into holes at ends of wood poles. This assembly is then inserted inside Cabana. $6.98.*

4 *Eve Tent has Y-support assembly. $10.98.*

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thunder storm, and Moss now estimates that it should last several seasons. The sleeping bag was so warm that he removed some of the insulation; it is still completely snug even for winter use.

Moss is continuing to experiment with new designs and new materials. One of his most ambitious current projects is the Roll House (opposite), a lightweight, portable shelter for which the Quartermaster Corps has already contracted. Here again Moss has utilized one of the new paper-base materials, Fome-Cor. Developed jointly by Monsanto and St. Regis Paper Company, it is a polystyrene plastic foam with Kraft paper bonded to both sides. His experiments are also leading into a new field of fashion design. With staff member Geraldine Sakall, a Pratt-educated industrial designer who has worked on the beach accessories, Moss hopes to utilize some of the new materials to create carefree, but stylish, clothes for motoring. He thinks they will appeal to travelers who put on old clothes to drive, then feel embarrassed when they pull up to a hotel.—*A.F.*

DISPOSABLE ACCESSORIES

Manufactured by Corporate Research and currently retailed through department stores are: a seven-foot tent for two adults and two children, $10; a four-foot square tent for two, $6; a 20-foot Para Wing, $16; a sleeping bag (left), $7; a stadium blanket (below) $.98; a featherweight portable cooler (below, left) $1.

PORTABLE PAPER HOUSE

The Roll House, in its present rigid Fome-Cor prototype, is over 15' in diameter. It can be set up in about 20 minutes, and it knocks down to a seven-by-three-foot package of 100 pounds. Because it is held up by a tension principle similar to that of barrel and staves, there is no interior bracing. After the tape-joined side panels are unfolded and snapped together in a circle, the synthetic paper roof hooks onto the top of the panels by means of grommets. The roof is then snapped into a taut, shallow dome by means of seven-foot battens, which also attach to the side-wall grommets, and at the center to a hub, like a wagon wheel. The whole roof structure is simply pushed up, and the tension is sustained by a rope running around its circumference and pulled tight against the sidewall. Pegs, guy ropes, and grommets around the base anchor house to ground. It will last about three years and will retail for under $200.

PACKAGE FOR PETROL

Roberto Menghi's gasoline container designed for Pirelli in polyethylene is the winner of an Italian packaging award for its multiple virtues of stacking, packing, handling, and pouring with ease

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North of Milan in the small city of Monza where the father of the late, exiled Italian king was assassinated, the firm of Pirelli operates a plastics fabricating plant: insurance against the day when plastics may replace the rubber that now binds together the Pirelli industrial empire (30 factories in Italy, 16 more in England, France, Belgium, Spain, Canada, Mexico, Brazil, Argentina, and Turkey—and a soon-to-be-completed Ponti Nervi skyscraper in Milan). The Monza plant works primarily with polyethylene and fiberglass-reinforced polyester resins. Much of its output in the first of these consists of containers for industrial, commercial, and household use. Pirelli is a pioneer in the production of large polyethylene forms; the Pirelli-Montecatini 50-liter drum for industrial chemicals (developed jointly by the two Italian firms) was shown in this country at a packaging exhibition in Chicago in 1955, and is currently on display in the Museum of Modern Art's packaging show (see page 76).

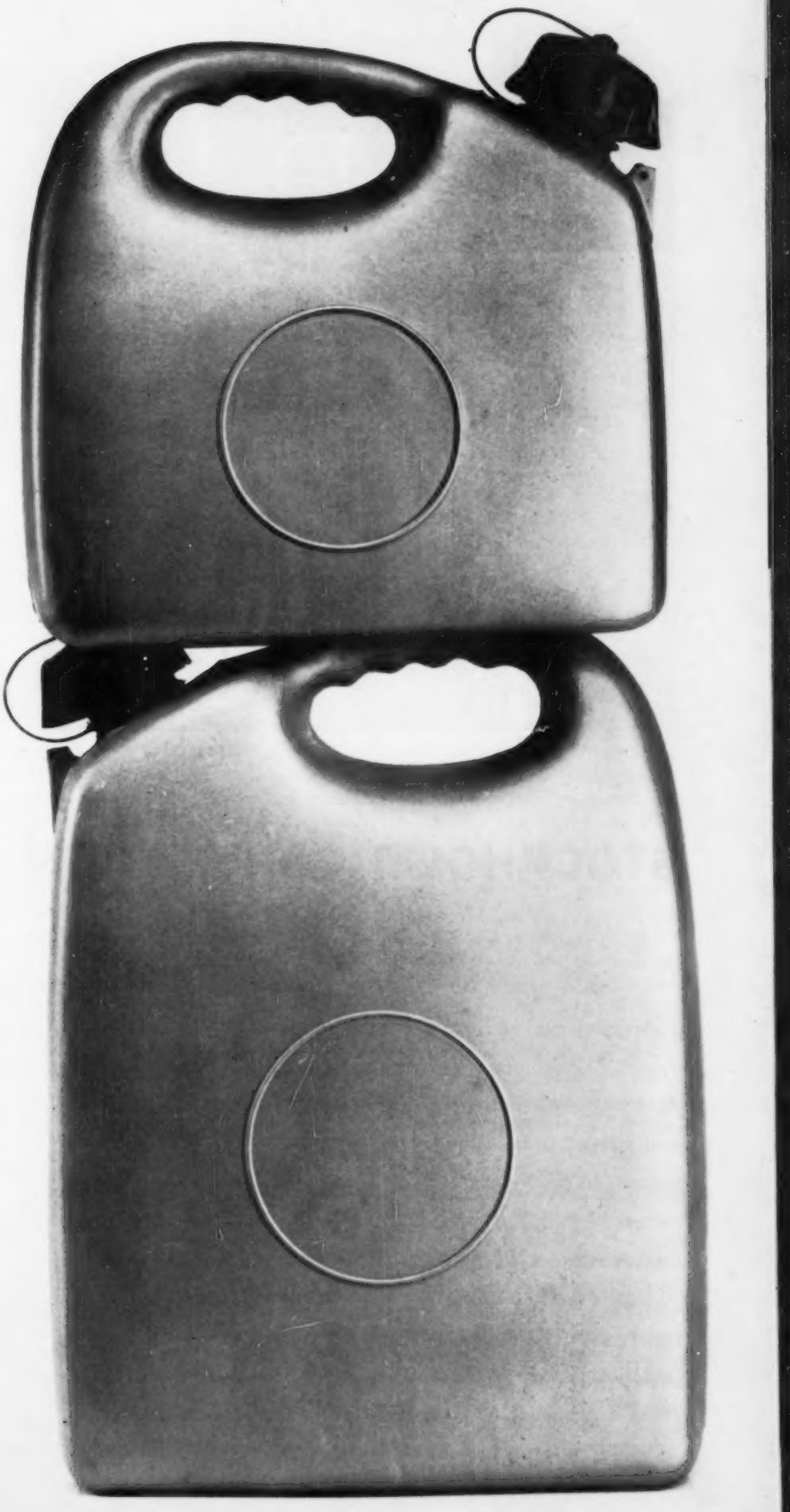
Another Pirelli product, also in the Museum show, is the recipient of an Oscar dell' Imballogia award, given annually by the European Packaging Institute. Roberto Menghi's polyethylene container for gasoline, which appears in various perspectives on these two pages, was singled out for one of the 1958 Oscars which were presented officially this past May during the Padua Fair. The Menghi design has some unusual features. Its handle is developed within the external contours, making it exceptionally strong. The bottom has a molded-in cavity to permit easy stacking for packing and display, and the cavity also functions as a handgrip when pouring gasoline. The spout is retractable and the cap is loss-proof: a guard strap snaps around the neck of the spout and over a button on the cap. The sidewalls have molded-in circular areas for the insertion of trademarks or labels. To withstand the action of the gasoline it will contain, the container is blow-molded of polyethylene compounds of very high chemical inertness. It is made in four sizes which can be translated into U.S. measures of $1\frac{1}{3}$, $2\frac{2}{3}$, 4, and $5\frac{1}{3}$ gallon capacities. At present it is available only in gray-green with black cap and retractable spout.

Menghi's design is one of several he has done for Pirelli during the course of his relationship with the company as a consultant designer on special assignments for the Monza plant. Like many Italian industrial designers, he is also an architect and, until three years ago, most of his work was in that field (he reverts to it in a current Pirelli project —a dome-like shelter to be assembled from curving components of fiberglass-reinforced plastic). In his short professional life as an industrial designer he has already won several Compasso d'Oro awards for consumer products in plastics. He now heads his own design office in Milan.

1 *The four sizes of the Pirelli gasoline container are identical in conformation. They are designed to lie flat in the trunk compartment of a car, take up very little room.*

2 *Two molded-in cavities in base of containers are shaped to accept handle and cap for stacking, presumably in transit to gasoline dealers and on display at their stations. Larger cavity is also a hand-grip for pouring.*

3 *Handle is exceptionally strong because it is an integral part of container's body. Underside has contoured finger grips, and a thumb depression on the top, just behind cap, provides a bracing point so that the container can be carried and poured in balance.*



ICSID

STOCKHOLM CONVENTION

Two years ago in London a first, hopeful meeting of 19 *industrial designers from societies in* 11 *countries formed the International Council of Societies of Industrial Designers and agreed to meet again in* 1959. *In September, in Stockholm,* 140 *participants from* 19 *countries attended the first general assembly of ICSID and, in the brief period of three days, surmounted their parochial interests and the obstacles of language to become in spirit, as well as by formal document, an international society. Beginning on the facing page is a report on the assembly; further along are excerpts from a provocative paper and from the closing address of ICSID's retiring president.*

All photographs, except as indicated, Leon Shugar

The delegates adopted a constitution, arrived at a formal definition of industrial design, and, in the lively discussions that followed the two major papers, developed a lingua franca of their own: a report on the convention's activities by **Polly Miller**

By any standard the first general assembly of the International Council of Societies of Industrial Designers convening September 16-19 in Stockholm was an overwhelming success. Among its important accomplishments were those of organizational solidification, intellectual stimulation and —possibly most important of all—the emergence of an international spirit of professional kinship. Delegates from member societies all over the world discovered common bonds of experience and outlook that transcended national differences and linguistic barriers. They may have come singly and as strangers. But they parted united and friends.

The selection of Stockholm as the meeting place unquestionably contributed to the success of the assembly, for Sweden is possibly the most uniformly design conscious of nations, bestowing private and public recognition upon its own industrial designers, almost as a point of patriotism. Wherever they went, under the guidance of their Swedish host, delegates were made aware of that country's long history of responsiveness to taste in craftsmanship and design.

The congress was called into session the morning of September 16 at the Hotel Foresta, situated high on a bluff overlooking one of Stockholm's many waterways—away from the temptations of the fascinating city center. In his keynote address Count Sigvard Bernadotte of Sweden, organizational committee chairman, took note of the tremendous response to ICSID's call for an international meeting. Official participation as listed in the membership roster came to an impressive 48 delegates and 70 observers from 19 countries. A representative from UNESCO and 21 wives brought the total of registered participants to 140.

The United States sent its full quota of three delegates from each of its societies, the American Society of Industrial Designers and the Industrial Designers' Institute. Representing ASID were Jack Collins of Milwaukee, Wisconsin; George Labalme Jr. of New York City; and Raymond C. Sandin of Chicago. IDI delegates included its past president, George Beck of Utica, New York; national treasurer, Leon Gordon Miller of Cleveland, Ohio; and Theodore G. Clement of Rochester, New York. Peter Muller-Munk of Pittsburgh, one of the society's founding fathers, officiated as ICSID president.

As hosts for the Stockholm meeting the Swedish industrial designers worked with the ICSID Executive Board in setting up a program that skillfully intertwined business with pleasure. Business sessions occurred primarily in the mornings and the open sessions, composed of papers and discussions, were embedded in an afternoon sight-seeing program that gave delegates a glimpse into Scandinavian culture, a major event being the formal opening of Sweden's newly built State School of Arts, Crafts and Design.

In the business sessions delegates heard a report on ICSID activities since its formation in London in June, 1957; they also adopted a constitution setting eligibility qualifications for member societies, and officially defined an industrial designer as one who is "qualified by training, technical knowledge, experience and visual sensibility to determine the materials, construction, mechanism, shape and color, surface finishes and decoration of objects which are reproduced in quantity by industrial processes. The industrial designer may, at different times, be concerned with all or only some of these aspects of an individually produced object." It is a definition that confirms a point made repeatedly and voiced first by Bernadotte in his opening remarks, that "Industrial design is a team operation, no one person today having the capacity for encompassing within his being all of the fields of knowledge that must be distilled into a design solution."

While the aims and functions of ICSID were manifesting themselves daily in the very spirit of the congress, a dozen or more objectives listed in the constitution implemented, in the main, the stated avowal to "raise, through organized and regular interchange of information and personnel, the professional status of industrial designers in all member countries and improve the standards of industrial design."

At the close of the second business session, the following members were chosen to lead ICSID for the next two years: president, Misha Black of England; vice presidents, Enrico Peressutti of Italy and Pierre Vago of France; secretary-treasurer, Mrs. Mia Seeger of Germany. Peter Muller-Munk of the United States remains on the Executive Board as past president. Delegates selected Venice, Italy as the site for the Second General Assembly in October, 1961.

In counterpoint to the business sessions at the Foresta, the open sessions were held in daily-changing geography and architecture. Enrico Peressutti's report on The Training of Industrial Designers was delivered at the Tekniska Museet, Stockholm's technical museum devoted to the evolution of tools and processes since the Industrial Revolution. The museum itself is built on top of an early mine which has been transformed into an underground labyrinth to form an atmospheric, walk-in exhibit. The museum was also the site of the special exhibition of industrial design set up

Polly Miller

1 *Messrs. Patrix, Dumond, and Vago of France, during intermission.*
2 *Paul Reilly, director of British Council of Industrial Design.*
3 *Harold Barnes, representative of the director-general of UNESCO, Paris, attended as an observer.*
4 *ASID and IDI members attending were (left to right) Miller, Cullen, Beck, Labalme, Sandin, Muller-Munk, and Clement.*

by ICSID to show work of individual designers and design firms from member societies.

Peressutti and his committee examined techniques and standards used in the teaching of industrial design. A four-part questionnaire brought a 12-country response of detailed information on facilities and teaching resources, curriculum and teaching techniques, prevailing educational philosophies, and criticisms and recommendations for improvement.

In his synthesis Peressutti said, "it is generally felt that the education of an industrial designer should begin after his 18th birthday, that he should specialize for a period of from four to five years after having attended a liberal arts school, and, if possible, that he should have received good 'training' in artistic subjects and in the use of primary materials. A more severe control over the admission of students to industrial design schools is considered necessary. These pre-design schools should be, if not necessarily at a university level, at least at that of the high school. We have received requests that design schools be better furnished with proper rooms and above all with large laboratories and with means for both artistic and technical experimentation using various materials. It is considered highly important for both students and professors to be able to travel, in their country and abroad, in order to become acquainted with different tendencies, industrial development, and goals that are actually being sought. Also, students should visit professional studios with the eventuality that they can serve as apprentices in these studios and in producing industries."

Peressutti emphasized the danger of settling for an education that is "solely a system or mechanical attitude" governed by teaching of technique. "If we should have to decide between schools, the concensus is that the liberal arts school is better, because if there is any one field in which a student must plunge deeply, it is that of general culture and not that of technique" which changes and becomes obsolete with each technological advance. To insure continuing inquiry into education needs and developments Peressutti proposed establishment of a committee to review and extend the gathering of information, not only among member countries, but on the other side of the Iron Curtain "not only because it is logical and necessary to know the methods, the means, the situations and the results which have been obtained there, but above all because our every action must transcend eventual political difficulties."

Any fear that international attainment of educational standards might result in international monotony was eloquently refuted by delegate G. Patrix of France who said that all countries have in common the need for setting standards and improving education programs, but that no set standard or program can be drafted to suit all nations. This was underlined in Peressutti's comment that "the function of our profession is universal. The way in which we design is regional and personal."

Equally stimulating, provocative and definitive was the paper on An International Definition of Industrial Design by Paul Reilly, executive director of England's Council on Industrial Design. Providing another change of scene, this session was held at Skogshem, the new, campus-plan Swedish Employers Association's Institute for the training of foremen and supervisors. Reilly, as did others during the Assembly, stressed the need for a broad, rather than narrow, definition, pointing out that the ICSID constitution itself has "thrown the door wide open to anyone who designs anything for quantity production by industrial processes without—again wisely—trying to define quantity other than by excluding the individual, personal work of an artist craftsman."

To sum up requirements demanded of this new profession Reilly said, "an artist working for industry must be part scientist and part technician; part sociologist and part salesman; part diplomat and part prima donna; part historian and part prophet. I can think of no shorter description for such a paragon than Industrial Designer—'industrial' for all his banausic attributes and 'designer' for his purposive, disciplined and well-directed qualities. And if I were asked to list the industrial designer's most necessary characteristics I would offer the six T's: technique, talent, taste, tact, tenacity and lastly, tongue, for if he cannot explain himself, no one else will be able to do so."

While no one disagreed with Reilly's delightful probing of the pride and prejudices compressed into the term industrial design, a spirited discussion sprang up as to whether the term was a monopoly of the English-speaking countries. Delegates said that in many of their countries the words "industrial" and "design" carry inappropriate connotations, and that also, the concept itself is expressed differently in different countries. In Germany the term comes out *formgebung*. Norway calls it *industriel formgiving*, and so on. Sentiment held strongly to the view that industrial design should be so called because, regardless of nationality, it most universally expresses the connotations implicit in performance. It fell to a delegate from Germany to bring the hair splitting to a halt with his observation that "some years ago the English speaking nations made off with our word 'kindergarten'. It's time," he said, "that you paid us back."

The first General Assembly of the world's design societies concluded September 18 with a dinner and dance at Stallmastargarten, a famous 300-year-old inn on the outskirts of Stockholm. New officers and executive board were introduced and President Misha Black extended sincere thanks to the Swedish industrial designers for their unexcelled hospitality. He paid tribute also to Peter Muller-Munk for his tireless enthusiasm "without which ICSID could not have survived." And Muller-Munk in his valedictory address—explaining his involvement in ICSID—saw the "supra-national" society as a manifestation of a larger movement, "a shift from single responsibility and power to team action and group responsibility. . . . Through industrial design, the creative impulse of the individual can again find its proper outlet by identification with his equals. By free association with other creative minds, the industral designer gains for himself vastly increased impact and unlimited new opportunities for effective self-expression."

Count Sigvard Bernadotte expressed the assembly's atmosphere of mutual regard and optimism in his prophecy of continued growth. "Now that its establishment as an international organization is assured," he said, "a tremendous vista opens to this great body of industrial designers entrusted with the task of shaping the form and the esthetic of our future world."

New officers of ICSID, left to right: Pierre Vago of France, vice president; Count Sigvard Bernadotte of Sweden, vice president; Mrs. Mia Seeger of West Germany, secretary; Misha Black of England, president. Enrico Peressutti of Italy, is chairman for the 1961 assembly; Peter Muller-Munk of the USA is out-going president and new chairman of executive board.

The director of the British Council of Industrial Design thinks we have mis-read the Bauhaus intentions and may not be entirely sure about our own, either: excerpts from a paper, "An International Definition of Industrial Design" by **Paul Reilly**

I think we can all by now take as read the evolution of the industrial designer from the days of the single-handed artist-craftsman, through the stultifying period of applied art, to the constructive influence of the nineteenth century engineers and the rather less constructive protests of the Arts and Crafts Movement, and on to what Reyner Banham has called the watershed years of the early part of this century. We must accept, too, the profound influence of Walter Gropius and the Bauhaus whose teachings served both to liberate the artist and to discipline the technician in man.

We can also accept with Nikolaus Pevsner that the decisive fact of the years 1910-1920 was that at last, after five hundred years of treading in ancestral footsteps, the architect or designer was free to express his own age through forms and motifs that had not been bequeathed to him by previous ages, but were the products of his own techniques and his own imagination. It is this liberation that is your most precious possession today and it was, in my reading, fundamental to the teachings of the Bauhaus, whatever more recent pedagogues may say.

From this liberation stems the whole structure of the best current design practice, embracing research, analysis, anthropometrical data, ergonomics and all the other tools and techniques of the professional design office, for these are but new disciplines voluntarily self-imposed by the liberated designer. On the other side it is also from the same liberation that we suffer the undisciplined exaggerations of the commercial stylist. The dividing line between the two is often indistinct but it is none the less a razor's edge.

It may have been this duality in the Bauhaus teaching that has given rise to subsequent ambivalence in discussions on the role of the designer, some people attaching more importance to the liberation of the artist and others more to the technical disciplines. At one time, however, both aspects seemed to point in the same direction. On the one hand liberation from preconceived, inherited forms served only to produce a new set of purified archetypes, while on the other rigorous observance of techniques and processes tended to enthrone the shibboleth of the machine esthetic.

Thus was developed what came to be known as the Bauhaus style, than which nothing can have been further from the minds of its progenitors since styles, fashions, vogues or formulae were the very antitheses of all that they upheld. The accident of this development has led a distinguished contemporary critic to belabor the Bauhaus for the very formalism that it set out to oppose. But I think we should ask ourselves whether it was an accident, or rather whether it was not inevitable that the new teaching should have led to a new formal expression—whether, in short, a designer can ever duck his responsibility as an artist, as a creator of forms or patterns that may, when multiplied, add up to a style, for this is very central to the current discussions on industrial design.

No one in this industrial world would deny that the

designer for industry should first master his techniques of production, should understand his materials and should be able to see the point of view and speak the language of engineers, accountants, publicists, salesmen or any other of his technical colleagues. And few would quarrel with Tomaso Maldonado of Ulm when he warns that the designer will today slip behind if he is not aware of the implication of automation and of operational research. Many would also welcome Maldonado's idea that the designer should perform the role of coordinator, bringing all these ends together to produce a satisfactory result. It is so evident that a first-class industrial designer must be a most versatile technician that these points are hardly worth reiterating. What needs closer study however is the word "satisfactory" qualifying result. It is the kind of result that concerns the designer.

His responsibility towards his market or his public extends beyond designing something useful, convenient and attractive. A designer must explore not only wants but needs. He should know not only how people use a given object but how they could use it better were it different. If he can create a want by discovering a hitherto unrecognized need he will, like an inventor, be making a real social contribution.

His responsibility towards his times, however, raises more controversial issues. It is at this point that the word taste must be faced, however reactionary that may sound, since taste and times are inseparable—no matter what times. There is obviously something else required in a designer than an intuitive perception of what is in the air at the moment. He must not only have the contemporary eye; he must also contribute to the development of the taste of his generation.

One of ICSID's founders believes that industrial design, by the nature of its function, is in the vanguard of the new concept of administration-by-group: excerpts from an address by past-president, now chairman of the executive board, **Peter Muller-Munk**

I believe that as an industrial designer I have an obligation to uphold my own standards. I have a professional responsibility to my clients, to their labor-force, their stockholders, and to their customers, and through them to the well-being and the style of life as it is being lived on my own little insecure planet. Now the process through which this philosophy is communicated is a very complicated thing indeed. Mind you, I said process because that is what it is—not the flash of discovery, the lonely agony of artistic creation, lovely and precious as they are. I do not believe, however, that they are the determining factors of my profession.

In my opinion, industrial design is literally pioneering an entirely *new* concept of creative cooperation and accomplishment. All of us, and perhaps you more than I and my American colleagues, are heirs to the notion that the single personality, the hero, the genius, the boss, is the only agent of creation, of authority, and of progress, without the need for much delegation of active responsibility to the lower echelons. However, as industrial production became a way of life, individual command began to give way to group command. It is my firm opinion that the shift from single responsibility and power to team action and group responsibility is one of the most revolutionary developments of our age.

Modern product development and mass distribution have created more and more complex industrial empires, which can no longer function in the administrative pattern of the 19th century. The concept of management is in itself an admission of group authority as against owner authority. On the political front, UN, NATO, the South Asian and African Conferences and the Eastern Bloc deal with ever larger geographical federations. Economically, the common European market and the free-trade area of the outer seven are acknowledgments that economic isolationism and sovereignty are dead—unworkable—suicidal, and that only the team can survive and prosper in a world of the fair-play of team-work.

It is precisely in this area that industral design has made, and continues to make, one of its most significant contributions. The basic concept of design is related to the idea of planning, to the balancing of different elements, until their arrangements make a coherent pattern. The very working methods of industrial design are dependent not alone on cooperative relationships in the designer's office, but even more importantly on the transfer of this concept to the coordination of science, engineering, production and marketing. Design becomes the connecting link which gives meaning to the jig-saw puzzle of contemporary specialization. Through industrial design, the creative impulse of the individual can again find its proper outlet by identification with his equals. By free association with other creative minds, the industrial designer gains for himself vastly increased impact and unlimited new opportunities for effective self-expression.

The lesson and the techniques of team-work are not always easy to learn because they are often in conflict with the habits of generations. However, if we are going to survive and survive decently and in peace, we will just have to do ourselves over and learn how to work with others through others. Once we accept the principle of creative cooperation, however, then there is no turning back—no place to stop. First you begin by practicing it at home, in your own office and with your colleagues. But, you will find that you proceed from there quite inexorably into constantly widening territories. The momentum of the idea pushes you first from the local into the national, and then from the national into supra-national involvements.

So, I discovered that in order to retain my own self-respect and in order to live what I believed in, I had no other choice than to go out into the world and become a part of it. There is a wonderful sentence by Henrik Ibsen which goes "I hold that that man is in the right who is most nearly in league with the future." Well, I like to be right and as an industrial designer I think it is my job to anticipate the future. So, *voilà*, I was fair game when the idea of an International Council of Societies of Industrial Designers began to take shape. It wasn't a very popular idea at the time, certainly not in the USA, and it isn't entirely out of the woods yet. To those of you, however, who consider us of ICSID as either too starry-eyed or too commercial, all I can say is this: If ICSID did not now exist, it would have to be founded all over again because it is the response of industrial design to the rhythm of our century.

REdesign

SHIP PROPELLER HAS CORKSCREW ACTION

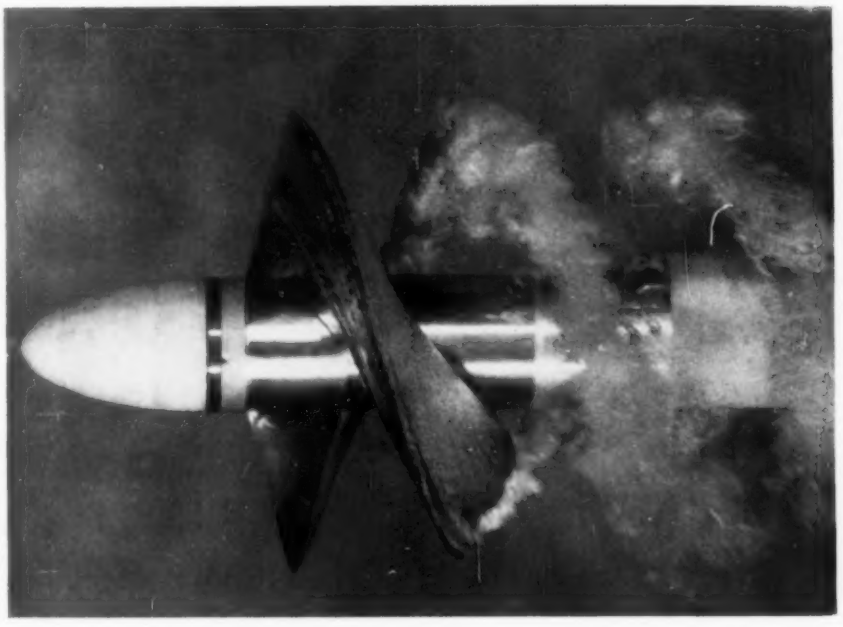
The U.S. Navy has developed a ship's propeller which represents as much an advance over a conventional propeller as a jet engine does over an ordinary aircraft engine.

A major barrier to propeller efficiency is cavitation—the formation of vapor pockets around whirling blades. The principle on which a ship propeller works is this: the blades "scoop" out water and impel it in a direction opposite to the direction of the ship. Since action equals reaction, the ship moves forward at a rate depending on the weight of water displacement, that is, the more water impelled behind the ship, the faster the ship is propelled forward. However, a ship's propeller moving very fast will not allow sufficient time for more water to replace that impelled behind by the propeller's action. A vacuum is created, and instead of each successive stroke of the blade cutting into water, the stroke cuts into a vapor pocket, lowering the efficiency of the propeller. As the speed of the blade increases, the vapor pocket becomes larger, and when it gets larger than the width of the blade that forms it, a state of "super-cavitation" is said to exist.

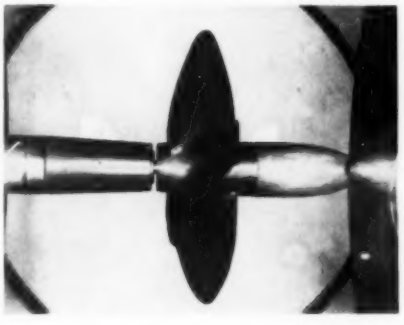
Development of a new propeller which "screws" or spirals its way through water is the result of work done in the field of hydrofoils by Marshall Tulin, currently with the U.S. Navy office of Naval Research at its branch office in London.

The new propeller, by exchanging a continuous plane for separate blades, appears to overcome the inefficiency of vapor pockets. According to the Navy, this propeller can operate at high speeds with little loss of efficiency, thus utilizing gas turbine engines with their characteristically high rotational speeds. At present, when gas turbines are used, reduction gears are necessary to slow the propellers to non-cavitational speeds.

Studies are currently being made by the U.S. Navy to exploit this new propeller, and initial tests indicate that marine vessels of all kinds can use it, thus achieving higher speed with less vibration and lower costs and weight, due to the elimination of expensive reduction gears. These studies may have a far-reaching effect on future ship hull designs, permitting compatability with the anticipated greater speeds through the water.



In the photograph above the new propeller is seen stopped in motion, the air bubbles behind it. Below, left, is a conventional propeller, and below right, is a semi-cavitation propeller which represents the best presently in use by modern ships.

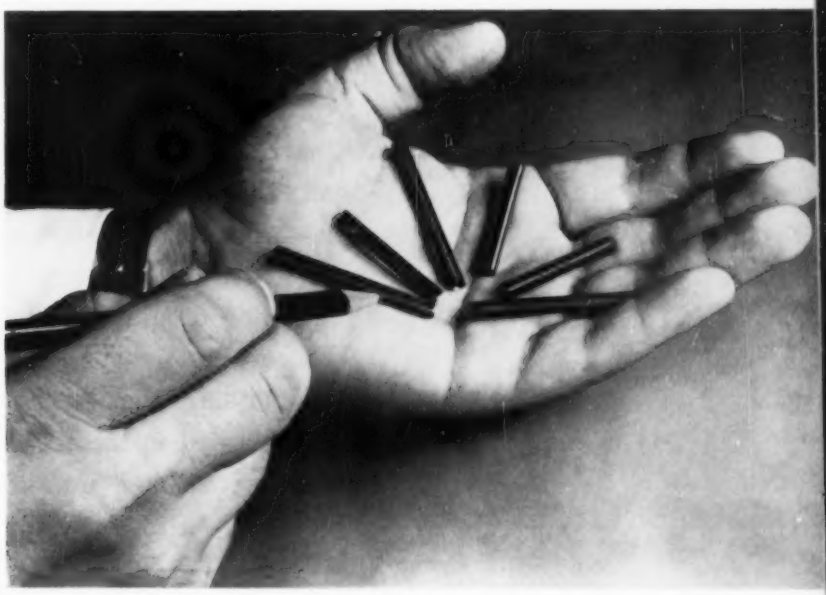


HEEL LIFT HAS BUILT-IN SPRING-PIN FASTENER

A method of replacing lifts on women's high-heeled shoes has been adapated for do-it-yourself use by the Fitz-On Heel Corporation, of Manchester, N. H. The new heels fit onto a shoe by means of a spring-pin, which is a versatile industrial fastener. When a woman finds the heel of her shoe is wearing down she need only take a pair of pliers and pry off the worn part, replacing it with a lift of nylon and molded plastic.

The fasteners, which are the key to the device, are Sel-Lok spring pins, made by the Standard Pressed Steel Corporation. The slotted, tubular pins are driven into a slightly undersized hole in the heel, the resulting compression providing enough spring tension to hold the pin in the heel indefinitely. The lifts are fitted into the spring-pin and replaced when worn.

This method of lift replacement is said to lengthen shoe life, because heel replacements are no longer needed, and lifts can be inserted without the use of nails, which tend to split a wood base. Fitz-On refills are marketed through shoe repair shops.



Spring-pins (right) are the fastening device used in a new do-it-yourself replacable heel lift. The pins are slotted lengthwise, and compress when forced into a hole in the shoe's heel. The spring tension will hold a lift in place (see diagram above). Since these spring-pins provide the heel with a metal core, they serve to strengthen it structurally.

Lee Bolton

Packaging in nature: an egg in a shell

Design from nature: the Geodesic Radome

G. Barrows

Technology seen as art in 2 EXHIBITIONS

Running simultaneously at the Museum of Modern Art are two shows in which design plays an exciting, and often controversial, part. "The Package" is an exhibition of nearly 200 items—including one telephone—which the Museum finds to be "well designed packages." "Structures by Buckminster Fuller" displays three of Mr. Fuller's revolutionary designs—a cantilevered space frame, a plastic dome, an aluminum mast—with the suggestion that the principles embodied in these three examples of Fuller's "comprehensive design" can lead to architecture of an entirely new appearance and character.

Mei Lou Foo

Visitor peers under belly of "the big whale," U. S. Rubber Company's giant "Sealdtank" inflatable container.

1 THE CURATOR PLAYS DESIGNER AND THE PRODUCT BECOMES A PACKAGE AT THIS CURIOUS, ROLE-SWAPPING PACKAGING SHOW.

Perhaps it is proper, indeed a good omen, that the Museum of Modern Art's first major venture into a new area of concern should be controversial; in any case, its current packaging show must be called that. In a handsome and austere setting on its main floor, the Museum's first show of packaging will run until November 9. Associate Curator Mildred Constantine and Arthur Drexler, Director of the Department of Architecture and Design, have selected a scant 200 items from ten countries to go into it. The packages range interestingly from tiny plastic pillow packs to a giant U. S. Rubber "Sealdtank" (above) and Assistant Director Wilder Green's installation—aside from such minor annoyances as the eye-straining type sizes and hidden labels which one expects at an MMA show—is lovely, exciting and a pleasure to stroll through. Besides being handsome, the show is quite provocative, but one wishes that it answered many more of the flock of questions that it raises.

One thing that makes the installation visually exciting is that the Museum, through some questionable alchemy, has transformed the prosaic package into an objet d'art. To get the effect, the museum has painted out packaging graphics wherever it felt like it. For instance, with the designers' permission, the staff has painted out all graphics on Harley Earl's Bissell upholstery cleaner and Raymond Loewy's Sucaryl bottle. In the process of effecting the trans-

Gallery of industrial containers indicates scope of technological packaging developments in recent years.

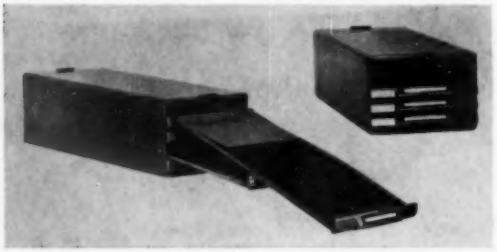
Alexandre Georges

Mei Lou Foo

Sucaryl bottle by Raymond Loewy Associates, bottle for mouthwash by Odol Chemical Corporation design staff, Bissell upholstery cleaner by Harley Earl (right) all appeared without graphics.

Ericofon, one-piece receiver-transmitter phone for North Electric Company by L. M. Ericsson.

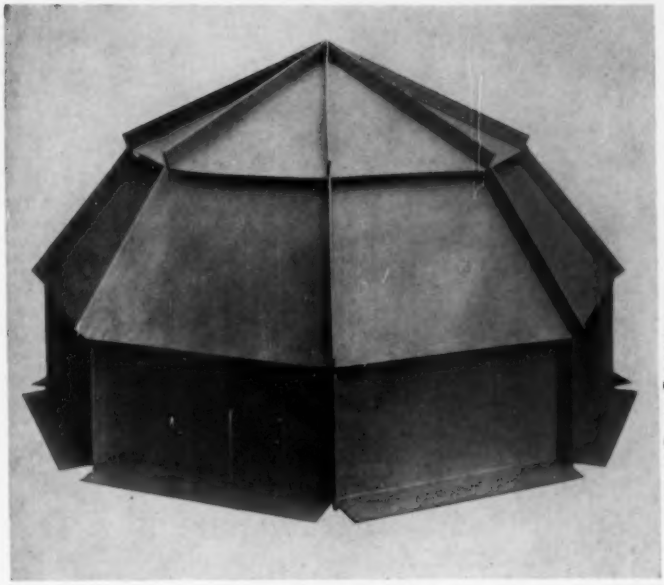
File cabinet for Acme Visible Records, Inc. designed by Lippincott and Margulies, Inc.



Portable radio for Max Braun designed by staff and Dieter Rams.

George Barrows

Vinylfilm protective suit by Snyder Mfg. Co., New Philadelphia, Ohio.



Temporary shelter for Container Corporation of America, adapted by Joseph F. Kilcullen from Buckminster Fuller design.

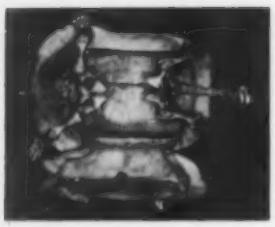
Four top photos: George Barrows

Cubitainer by Thomas W. Winstead as exhibited without its outer cardboard shell.

formation the curators have themselves acted as artists and designers, a role they have not yet assumed in conventional "art" shows. In other cases, arbitrary alteration of the package as designed has given the public an extremely confused idea of it. For instance, the outer cardboard case has been removed from the plastic inner lining of a Cubitainer. It now stands transformed into a fairly attractive piece of plastic sculpture; but except to those familiar with its purpose — to carry liquids in rectangular cardboard containers — the exciting idea behind this package is lost (since the show opened, a small explanatory photo has been pasted near the liner). This particular alteration seems so arbitrary that one wonders why the Museum bothered to limit itself to the realm of packaging at all. If it simply wanted to reiterate the notion that beauty can be found in designed everyday objects — a point it has made successfully and sometimes even courageously in earlier design shows — it might just as well have displayed telephones and fountain pens (as reasonably it has done in the past).

One soon discovers, however (left) that the Museum has not limited the show simply to packaging after all, for included is the "Ericofon", a card file, a radio, a vinylfilm suit, even one of Buckminster Fuller's portable cardboard shelters (above) for the Quartermaster Corps. Most of these items come under the heading, "working package," and their accompanying text block explains that "even so complex a mechanical object as the telephone can be compressed into one single package." But a definition of the package broad enough to include these products, instead of "expanding our concept of the package," sprawls so widely as to be virtually meaningless. The show might just as well include Fort Knox, which, after all, is simply a package for gold.

If such broad thinking tends to be a waste of time, the kinds of associations produced by the Museum selection of nature's packages are really helpful. A great deal of imagination has gone into this opening section of the show where photographs (next page) of grapefruit, a turtle shell, peas, and toad's eggs indicate some of nature's solutions to packaging problems. These lessons from nature give the general public a stimulating, comprehensible introduction to packaging and may even offer the professional package designer some fresh insight. Although the exhibition begins helpfully, confusion sets in almost immediately. One goes from the opening section on nature's packages either into a room with Fuller's portable shelter or across an aisle to where plastic sausage packages hang against the Museum's great window walls like brightly colored beaded curtains. The trouble here is that one really doesn't know in which direction to turn. All the show's packages are supposed to be divided between usable and reusable, but this division is not articulated by the installation. More important, *why* the packages were divided between usable and reusable is not made clear. The introductory text block says that they have been divided this way for convenience, but perhaps other groupings would have been more meaningful and interesting. For instance, the section on nature's packages might have led naturally into sections on *types* of humanly devised packages grouped by materials, by kinds of closure,



All four photos: Lee Bolton

Four packages from nature are suggested by the tortoise, grapefruit, garden pea, and toad's eggs.

Molded urethane foam packaging by Standard Plastics, Inc. becomes pieces of sculpture in Museum show.

Alexandre Georges

or, of course, by purpose. Or, since this is the first time the museum has given a major introduction to packaging, it might have been helpful to group packages historically—indicating the contributions of such major institutions as the Container Corporation, the Army, Alcoa and IBM, and such graphics pioneers as Beall, Bass, or Rand (none of whose work is included).

Strolling through this curious show, it is particularly tantalizing to see the "do not touch" sign everywhere—especially where unusual materials are used and it is important to get a direct sense of weight and texture. In a show which "emphasizes imaginative use of new and old materials," how exciting it would have been to touch the black molded urethane foam packages (right), squirt the plastic sausage packages, or even carry one home. Replacing these mass-produced masterpieces would not have been expensive, and manufacturers might well have underwritten costs themselves. But a more serious annoyance is that the interesting ideas outlined in the introductory text block were not explicated in the show itself. Big, easy-to-read headlines spelling out the show's main ideas (with examples close by) would have given the public a clearer introduction to packaging. As the show actually stands, individual labels do not explain what the new materials are, how some of the "working packages" work, much less why they are included. Why, for instance, it was necessary to import an onion sack from Slagharen, Holland rather than from the local A & P, is perhaps something that only museum curators can fathom.—*A.F.*

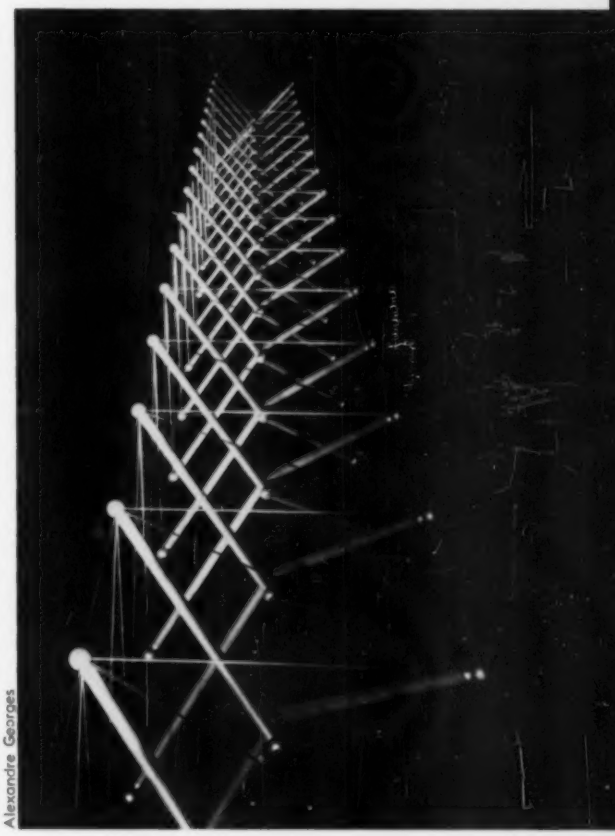
Geodesic Rigid Radome made of triangular plastic "piepans" is bolted together on site. G. Barrows

2 NOW THAT WE HAVE FULLER'S CONTRIBUTIONS, CAN WE BE TRUSTED TO USE THEM INTELLIGENTLY? *Reviewed by KENNETH ISAACS*

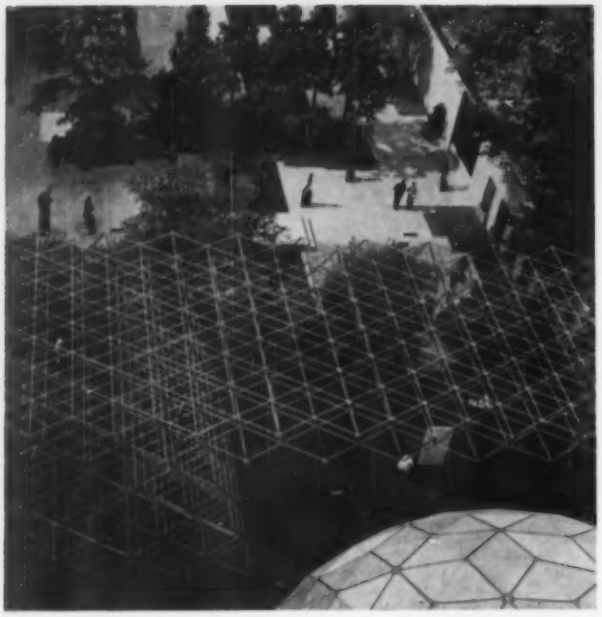
At rare intervals we are offered a glimpse of what our world could be if the percentage of sentimentality, selfishness and moral cowardice were not quite so high. The work of R. Buckminster Fuller has invariably been rich in truth of this kind, and the exhibition of his work just mounted at the Museum of Modern Art is no exception. There are three components: a geodesic dome constructed of fiberglass-reinforced plastic pans, flange-bolted inside and tape-sealed outside; the octet truss of aluminum tubing members with cast aluminum joints which was harbingered at IIT several years ago; and the tensegrity mast (developed by Mr. Fuller's student Kenneth Snelson) which is the classic realization of the concept of discontinuous compression members.

This major exposure of Fuller's work recalls the fact that the intelligent use of the potential of industrial production has never been more in doubt. There is a fairly widespread suspicion among thoughtful persons that life has not really been designed and technically improved in the last few years —it has been upholstered. This is to say that rather than making an all-out attack on the disparities involved in certain fundamental conditions of life, we have merely spread a thick layer of unassimilated technology over certain basic problems in hope that this insulation would make living "comfortable".

"Tensegrity mast" built by Shoji Sadao and Edison Price.



Alexandre Georges



"Octet Truss" aluminum space frame is cantilevered 20 feet above ground on single support. Exhibition was under direction of MMA's Arthur Drexler, Director of Architecture and Design.

Although there are on all sides cries that the revolution in design has been accomplished, even architecture—that thinking, acting force which has been a chief repository of constructive world thought for the last forty years—threatens to dissolve into a meaningless public-relations-motivated melange of reinforced concrete feathers overhead with infilling of large-scale costume jewelry filigree. Mr. Fuller has been virtually alone in working toward solutions which utilize the characteristics of industrial production in a significant way. The utilization of the ability to chemically construct materials by his profound biomorphic understanding has resulted in the invention of structures rich with value for people eager to live and work in a vital milieu.

As always the danger is that sour old wine will be put into these new bottles, or even that they may remain empty due to some lack of understanding. It is almost axiomatic by this time that the significance of the geodesic dome in housing has been missed. Architects and constructors have persisted in seeing the dome as just a "house" with a peculiar shape rather than realizing it is a totally new environmental shell which demands a design effort of like quality for the equipment if it is to be used as a living area.

Some, like the reviewer in a recent issue of a metropolitan newspaper, insistently attempt to absorb these constructions into the prevailing mystique of esthetics. This would be difficult, whatever system of artistic prejudice was applied, because such points of view have almost always been based upon *visual* sensation alone. This is obviously inadequate as a standard of value for a comprehensive design. Such an achievement can only be understood and evaluated in terms of its total relationship to the environment.

It is possible, however, to apply the term "beautiful" to these structures with justification if it is done in the same sense as an exclamation over a leaf or a sunset. The uniqueness of these is in the remarkable, exquisite economy and appropriateness which marks the process of forming. Form, as visible at any one given moment, cannot be more than a very partial image vulgarized by an inadequacy to contain the wonder of growing and becoming.

Thus a superficial viewer will observe that the octet truss in the museum garden looks like a praying mantis because of the enormous cantilever involved. But he will have missed the distinction between "to be" and "to look like": understanding lies not in seeing the general form—which is arbitrary and could be changed at will—but in the process by which the light inconsequential members of the truss, aided by the connectors, can grow like cell aggregations of living tissue to fill many needs while taking diverse general configurations. Despite these misunderstandings and others, it is a fair bet that the full meaning of Fuller's concepts will not escape all the three billion men now scavenging the planet for sustenance.

In this connection it would be judicious to observe that those at the museum responsible for this exhibition deserve recognition and appreciation for their perception in giving the public another opportunity to view Fuller's work.

Photos this spread: Alexandre Georges

U. S. MAIL ADDS PUSH-BUTTONS TO SPEED APPOINTED ROUNDS

Designers for the Burroughs Corporation have turned engineering principles for semi-automatic mail processing and sorting into new equipment which handles more mail and permits operator to route letters by pressing keyboard. The operator himself is the focal point of the new sorter, now installed in Detroit.

A new type of control system is threatening the old-fashioned method of mail processing and sorting, heretofore a man-handled, tedious operation. Keyboards, conveyors, indicating lights, and other devices are being used to turn this essential phase of a post office's operation into a semi-automatic system. Rabinow Engineering Company of Washington, a consultant to the Post Office, developed the mechanical principles and partial prototype of the new post office equipment called the Semi-Automatic Sorter, and the Burroughs Corporation took over development and produced ten of the new control systems. The first of these new sorters, installed in Detroit's Roosevelt Park post office, is now in use as a prototype for work studies and training of operators. Industrial design contributed significantly in the transition of operating principle into product, and was handled by the design firm, Lawrence H. Wilson Associates, Detroit, which served as design consultants to Burroughs' Appearance Design Department, supervised by George A. Conner; Kenneth A. Hopkins was project director of the Wilson group.

The old and the new

The system can increase by 300% the quantity of mail processed per hour. With standard post office equipment, the average clerk handles about a thousand letters per hour by sorting them into a frame containing 49 pigeonholes. With the new sorter, the same operator can process a maximum of about 4500 pieces per hour.

The new equipment consists of a 78-foot-long basic block (1) assembled from nine smaller building blocks each about nine feet long, and of 12 consoles (4) placed at right angles to this block. The operator handles a 10-key keyboard on which he taps out numerical combinations which route each piece of mail passing before him to one of 279 destinations. The letters drop into a tray moved along on a conveyor; mail is dropped by the tray into one of the destination pockets in rear of the sorter, from which letters are removed by hand (3).

Design considerations

The following were the main design considerations that shaped the approach of the Burroughs-Wilson team: a) the equipment is handled by human operators and dominates their environment during work hours; b) the dimensions of all basic units—the size and number of modules, the number of consoles per module, height and inside dimensions of sorting pockets, etc.—were fixed; c) the Post Office required service accessibility for all working parts; d) modular arrangements had to be flexible enough to permit installation of the system in offices of varying size.

The team set itself a basic design premise which emphasized the operator at the console—rather than the cabinetry itself—as the focal point of the design. The forms of the console and basic blocks evolved out of a strong architectural feeling with which the designers approached the actual design of the equipment. Throughout the process, designers conferred with Burroughs' engineering department and used scale and full-size mock-ups to work out engineering and manufacturing problems. Dimensions and basic specifications were determined by the engineering department. The industrial design group selected nearly all materials and colors for appearance parts (see caption, opposite page), and also filled in all unfixed dimensions and connecting angles (console heights, angle of feeder conveyor to console, of console to cabinet, etc.). Mock-ups were used for vendor instruction and bidding; a 1/20 scale model served as a progress report.

1

1. Basic block of sorter is 78' long, 10' high, 5' wide. Designers selected Haskelite vinyl-coated steel (U.S. Steel) on plywood for cabinet housing. Surface is a morocco texture in light pastel green. Material was selected for its good sound-absorbing properties, scuff resistance, washability, good production control.

2. At head of sorter cabinet control, factors such as speed of processing and other control codes are set up and checked by operator. The front panel of the sorter cabinet is a continuous line of 18 doors which can be folded up vertically to the top of the cabinet, thereby giving access to all parts of the sorter mechanism.

3. Letters are routed to 279 points of destination (mail pockets) in back of sorter, and are automatically deposited in pockets by tray which carries mail the whole length of the sorter. Mail is removed periodically from the pockets, which are 15" deep and 6⅜" wide.

4. Incoming stacks of mail are loaded by hand at the end of each console into the feeder conveyors. Operator sits at 10-key keyboard and taps out a numerical combination which routes each piece of mail to one of 279 pockets; mail is deposited in moving tray once destination has been determined. The consoles are made of formed and welded sheet steel; their color is beige.

2

3

Standard post office procedure (which new system replaces) is completely manual as shown here. Clerk sorts letters into a frame containing 49 pigeonholes.

4

A West Coast conference of firms in the electronics industry has initiated a design competition among the products it uses, in recognition of the role that appearance plays in the equipment's ease of function.

A recent competition held by the Western Electronic Show and Convention in San Francisco illustrates the prestige and importance which electronic equipment manufacturers have come to give to well-designed and attractive equipment. In fact, according to WESCON, the event was so successful in terms of interest and response, that a similar competition may be held at each such convention. The recent WESCON show invited manufacturers to submit products which were felt to be particularly efficient, attractive, and clear as to function. Each entry was to be a commercial system, instrument, component, or other product directly related to the electronics industry, and was to show evidence of original industrial design effort. Out of 140 submissions, eighteen were chosen for display and awards. Seven awards of excellence were made and eleven awards of merit (ID, September, 1959).

The competition was judged by the following California industrial designers: Robert M. Emerson and F. Gordon Mackay, of Emerson, Johnson, Mackay, Inc.; A. Peter Augusztiny, an associate at Henry Dreyfuss; John Maguire, professor of industrial design at UCLA; and Charles Cruze, of Los Angeles.

The chairman of the WESCON industrial design committee was Harold Lindsay, manager of industrial design at Ampex, who acted as an observer and interpreter of rules in connection with the judging. He described the criteria for selection as visual clarity, ease and safety of operation, and appropriateness of appearance.

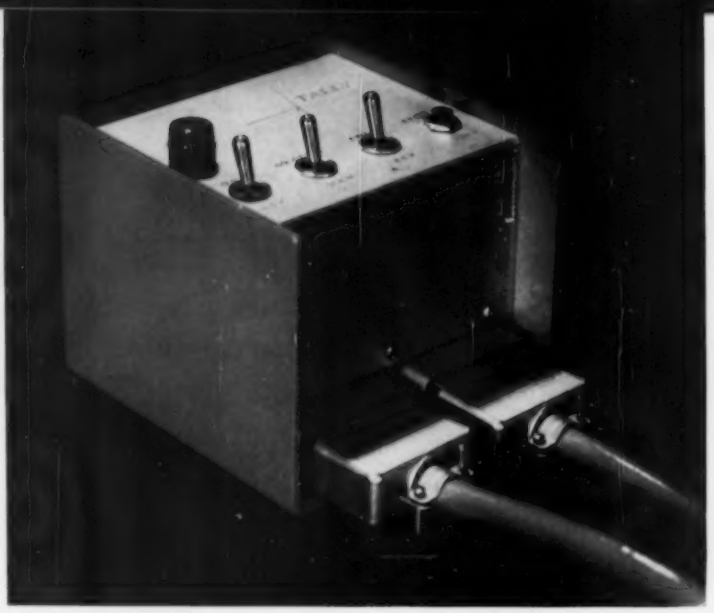
The show itself marks something of a milestone. Although industrial designers have long realized that many ideas of taste are founded on engineering concepts—i.e., streamlining and balance—manufacturers of producer goods on the whole have not given recognition to the incorporation of elegance into specialized machines and instruments. This WESCON competition marks an important recognition of good design in electronic equipment, acknowledging, as it does, that perception of efficiency may be one kind of esthetic pleasure.

PRIZEWINNING ELECTRONICS EQUIPMENT SHOWN

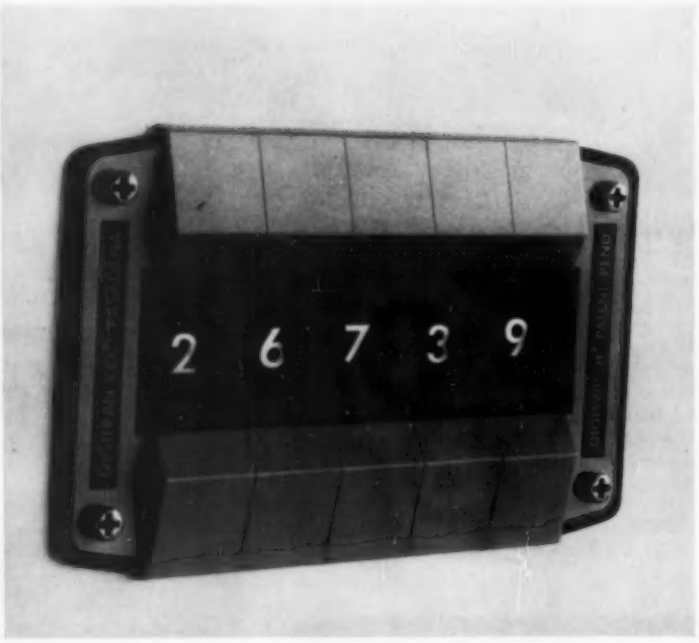
Recomp digital computer *was designed by R. E. Davis for Autonetics, a division of North American Aviation. It features sheet steel packaging and a lacquer finish. Noteworthy is its complete transistorization and portability. This computer was introduced in July, 1958, and its approximate dimensions are 84" x 30" x 30". According to the company, the operation is fast and simple—can be learned in a single day by an inexperienced operator. The entire computer weighs only 197 pounds.*

Airborne magnetic tape recorder *was designed by Frank T. Walsh and Glenn A. Smith for Ampex. It is made of sheet and cast aluminum with an organic finish. The cover can be opened from either side and the dimensions are 26" x 12" x 7". This tape recorder can be used to store data on flights for later relay.*

Ampex videotape-television recorder (VR-1000B) *was designed by Melvin Best Associates and Ampex staff designers. It features a casing of painted metal and plastic. The dimensions of the recorder are 55" x 34" x 42". The recorder can record and play back television tape.*

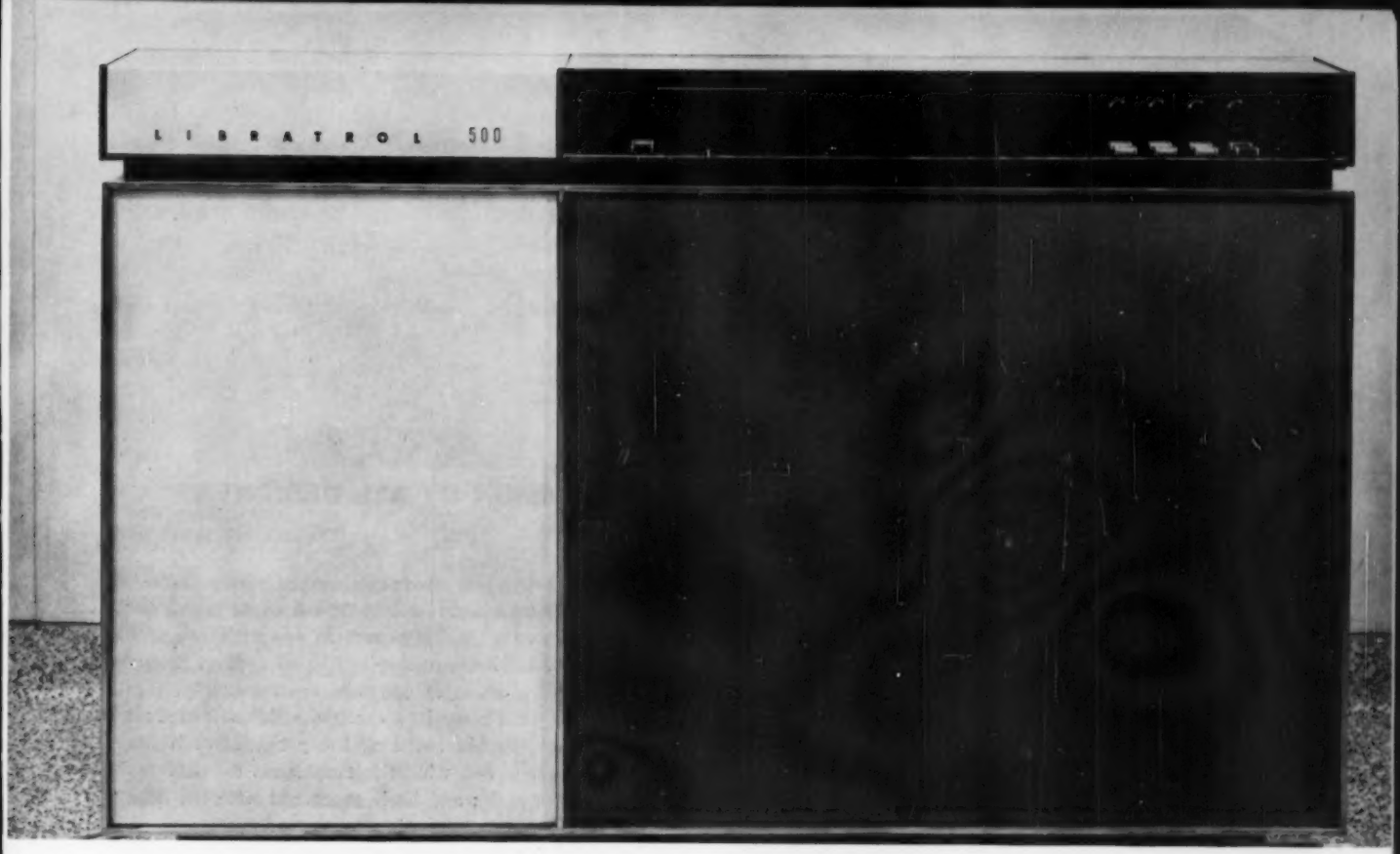


Tally *60-Cycle pulser was designed by Wade Vaughn for the Tally Register Corporation. The housing is composed of a clear anodized panel, with a painted blue-green cover. The dimensions are 6" x 6" x 6". According to its manufacturers its features are a stable pulse, variable rate, ease of operation, and economical packaging. The pulser was introduced in February, 1959. A design feature is the input and output connections, which are meant to establish a connection with no energy loss.*

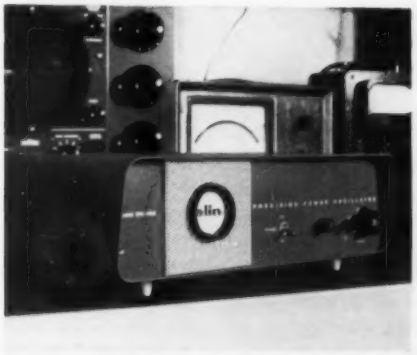


Digswitch *series 7300, was designed by Jim Powell Industrial Designers for the Digitran Company, a division of the Endevco Corporation. It is housed in plastic and anodized aluminum. The Digswitch features numbers legible from some distance away, and symmetry of design.*

Gyro Lead Computer Test Set *is part of Military Aircraft Ground Support Equipment designed by John Wilson and John Gaska of the General Electric Company. The housing is of aluminum and baked enamel, and the dimensions are 9" x 18" x 11". This equipment was introduced in January 1959, and is one of several components with similar designs and matching construction.*

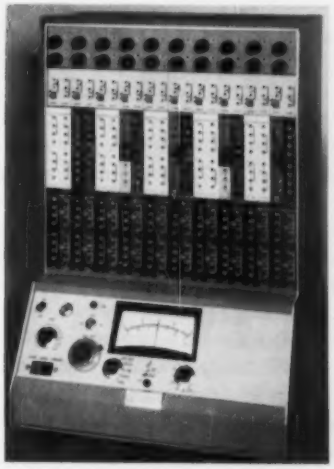


Libratrol 500 *is an industrial process control computer, and was designed for Librascope, Inc. by Zierhut and Associates. The housing is of painted aluminum and its dimensions are 62" x 34" x 30". The control computer was introduced in September, 1958. Like the Ampex Videotape-Recorder, a return to the single housing for a series of related components is indicated in this design.*



Elin Precision Power Oscillator *was designed for the Jaycraft Company by Matt Jacobson. The housing is of a sheet metal case with a grey crackle-baked finish. The control panel is satin-baked enamel, with the trade mark insignia in molded plastic. Like most modern electronic equipment, it is designed to harmonize with components.*

Analogue Computer *was designed by James Patmore of Electronic Associates, Inc. with John Bruce, consultant. The 16" x 24" x 10" housing is of plastic and metal. The computer was introduced in April, 1959, and is intended to be used on top of a desk. The switchboard appearance makes possible different programming, and the different colors on the face are intended to make connections quicker and easier.*



Once when sociologist C. Wright Mills was addressing a group of designers, he told them that "the highest human ideal is to become a good craftsman." The relationship between industrial design and craftsmanship has often been explored, but perhaps it can be seen most clearly when no one is consciously describing it. The third annual Conference of American Craftsmen held at Lake George, New York, this summer did not set out to examine the industrial designer, but it did provoke a number of statements that apply to him. For the professional designer, like the professional craftsman, is engaged in creating things for a society in which things *have become at once idolized and suspect, a society that challenges both the designer and his products. Their mutual dilemma — and some ways out of it — are suggested below.*

SOME SOCIAL RESPONSIBILITIES ARE HELD IN COMMON BY ALL DESIGNERS

DAVID R. CAMPBELL
President
American Craftsman's Council

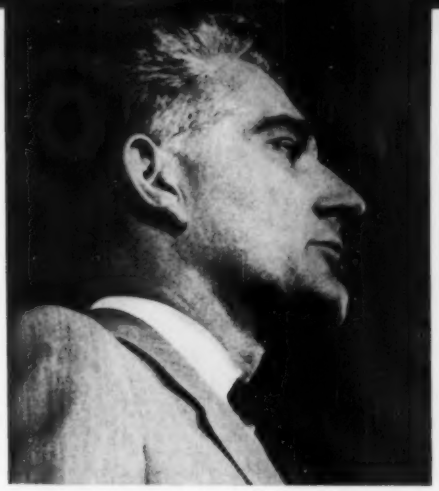
There is a very definite relationship between the designer of individual craft products and the designer for industry. In both cases the product, regardless of the market the designer is attempting to satisfy, is directly related to the integrity of the individual concerned. It always comes back to the man himself. There is nothing in media or technique that should alienate the industrial designer from the designer-craftsman. There are "phony" craftsmen just as there are "phony" industrial designers. In other words any alienation is not between the two fields but within them both.

Any difference between industrial designers and designer-craftsmen is likely to be one of motivation. The former feels that his great challenge is to meet the demands of contemporary society to have more and better things for more people. The latter is I believe more often motivated by a sense of pioneering new directions within a given medium.

I am particularly heartened by Mr. Risom's remarks. It is obvious to me that his approach to design is completely craftsman-like. He is concerned in his work from the very beginning with a sense of his own craftsmanship. He is concerned about his material — wood; he is concerned with the tools he employs in realizing the potential of his material; he is concerned with the techniques he utilizes in employing those tools; and he is concerned with the design of his objects as a craftsman is always concerned.

It is useful for designers, craftsmen, architects, decorators and others to meet and exchange views, and the American Craftsmen's Council considers this one of its chief aims, a recent example being the ACC Conference at Lake George. This function is of particular importance to craftsmen for it enables them to sense that they are in fact part of a community of art and design. I feel it is important for craftsmen as well as designers to realize their place in that community and to realize further that this community takes its place in the even larger sphere of contemporary society. The industrial designer in his working day may find himself associating with manufacturers of electronic equipment, with mathematicians, scientists, with members of a variety of design lines. The craftsman too must realize that society exists even if his contribution may be in only one area of it, that is, in the area of his own medium. The craftsman and the designer must get outside of themselves, must think in terms relating to the world in which they live. And to become aware I do not think that they have to particularly become "joiners" or "cocktail party jumpers." But they must be aware of the society in which they are participating to be able to interpret their experience in terms of their own time. It is exciting to consider how much the designer-craftsmen can be prompted by an educator like John A. Kouwenhoven who, though a professor of English, is tremendously informed in the very areas in which the designer-craftsman lives and works.

In attempting to sum up the remarks of Mr. Risom, Mr. Kouwenhoven and Mr. Lionni, I would say that they have wisely not tried to come up with any all-encompassing solutions to craft and design problems. Most likely each individual must find his own solution in his own work. But I strongly believe that the following remarks serve as a source of inspiration to all who attended the Lake George conference as well as to all who may read them here, and, as such, they serve well.



The quality product depends on the pride of the makers

JENS RISOM
Furniture Designer
Jens Risom Design, Inc.

We all know that to most people not associated with creative design, the word *design* simply means styling. It is important that the consumer be made to realize that design is *not* just styling, that it does not concern itself merely with the appearance of a product but rather with the entire product itself—the planning, the materials used, the craftsmanship, the appearance, etc. It should be made clear that a well planned piece of furniture, for instance, poorly executed cannot be called: "good design." It is, therefore, also, in my opinion, out of the question to be a *designer* without having a thorough knowledge of the materials used, the manufacturing and the function of the product itself. It is not necessary to know the workings of an automobile in order to "design" a body, and this is a typical case where we are talking about "styling" and not "design." It is, however, necessary for a furniture designer at the same time to be a furniture maker, a craftsman. Where wood is employed he must have a thorough knowledge of, and respect for, this magnificent material—he must know about woodworking machinery, he must know about construction, finishing as well as about upholstery. He must know about the important functions—comfort, for instance, which, by itself can make a chair "good design" or not.

Far too many people seem to think that they are "in the game" by simply applying what they call "good taste" in styling. To fight this—to insure the correct end product, your organization must educate the *consumer* to insist upon the efforts and skill of the product designer and craftsman. We must also bring the manufacturer to want creative design, based on thorough understanding of his facilities, and the end use of his product. He must not consider that it is a luxury to bring in the craftsman but must realize that it is a necessity.

I want to touch upon the important area of job training as it applies to the product designer, and to the crew who will execute his designs—one of a kind, or on a production basis. If we agree that only by employing good craftsmanship is it possible to achieve "good design" then the craftsman in a furniture factory, whose job can influence the result, must be trained to appreciate and respect the need for perfection. You cannot expect the average woodworker or machine operator to be very concerned with the looks of the end product which, in many cases, he doesn't even see. It is difficult for him to understand why it is important to carefully sand a chair arm underneath, why it is important that the underside of a piece of furniture is well finished, why the hidden frame of an upholstered chair requires craftsmanship; but somehow he has got to be told. This training job will have to start with the designer who created the product to be made. He is the one who, for lack of a better word, has got to "sell" his idea, he has got to explain the importance behind his creation, to build up a respect, a pride and an enthusiasm in the people who are entrusted with its execution. It is no use letting somebody else worry about this—it is the craftsman's—the designer's—job; no one else can do it.

In a small furniture factory (and, with very few exceptions, most furniture factories are small), it is entirely possible to create that feeling of individual effort and accomplishment. As long as you work with wood—and no material has ever come close to its beauty, texture and richness—the individual man's job of shaping, cleaning, sanding and finishing that piece is important. Machines can do only so much and good machines must certainly be used wherever possible, but the quality product will never be made by machines only. To create "pride" in the people who handle the individual operations is one sure and easy way to build up a good crew.

I feel strongly about this—based upon my own luck at our factory in northeast Connecticut which has been in operation only about three years. We moved into an area known for its large textile mills, and nobody in town had ever been anywhere close to a quality product—they had never made one, bought one or used one. It was a tremendous challenge to start working with these people, who in many cases were French settlers, and to find that once a job was explained to them, once they were told why it was important to do the job the way we—the designers—had planned it, they began to take a personal pride in doing it well. Visitors to our factory today are met by a group of, I think, happy workmen who take personal pride in the finished end product, and in showing what they are doing, in turning furniture upside down to point out how well it is made. These people are, in my opinion, craftsmen and if they are not "creative," they at least express the overall design idea; without their efforts, the product would not be the same. So, in other words, don't just think that your job is done in the studio and in your own hideouts. Your biggest and most important job is to sell—to explain—your efforts all the way down the line.

The artist in an industrial society: a stream of contradictions

LEO LIONNI
Art Director, *Fortune*

As artists we are traditionally committed, and I would say temperamentally committed, to a scale of values that lies closer to the basic, simple condition of Man than to the intricacies and the indirections of mass production, mass consumption and mass culture. Groping as we are for universal meanings, for elemental truth, we feel more at home (or at least we *think we do*) in a hut than in a house. We prefer bread and wine to Wheaties and Coca Cola. We prefer the market place to the supermarket. We prefer leather to plastics. We prefer live music to Muzak. We even deplore the fact that paintings can be reproduced in full colors and superficially enjoyed all over the globe.

In the context of today's American society and tomorrow's world our values seem to be not only anachronistic but outright reactionary. In spite of our vehemently professed love for the common man we might easily be considered a snobbish elite. The things we have clamored for so long—equality, prosperity, democracy—now seem to have become the very sources of our irritation. Unless we are naive, prejudiced or dishonest we should feel uneasy in this dilemma—for our moral-social views and our personal scale of values are clearly in conflict. We are floating along on an incessant stream of contradictions.

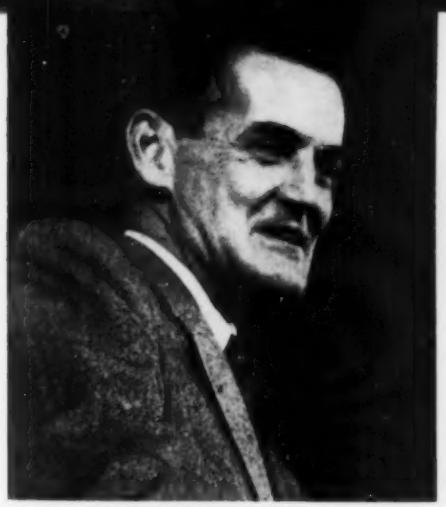
Should we, because of our belief in progress, our enthusiasm for democratic ideals and our awe for the brave new worlds of science and technology, throw away easel, potter's wheel and loom, and apply for a job with General Dynamics, Raymond Loewy or Celanese? Should we dissuade our youth from being artists and craftsmen and encourage them instead to become the prototype-makers for industrial production? Should we tell them that a blender, a toaster or a cigarette package is more important than the unique object, individually conceived and formed, and expressive of the noblest of man's urges? Or, on the other hand, should we ignore the rapid emergence of a new, totally changed world, ignore the most dramatic struggle against want that the world has ever witnessed, ignore that millions of people who only a few decades ago were doomed to an existence of squallor and hunger and injustice, are now enjoying a full, free, healthy life?

Unfortunately, there is ample evidence that we in the arts and crafts are doing our share in the general decay of standards and shifting of values. The temptations of easy success, rapidly achieved, the emphasis on novelty and originality at the expense of meaningfulness, the gradual dissolution of the bonds between form and content, the illusions of modernity derived from superficial cliches ("free form" "organic form" "Mondrianesque"), the misconception that modern materials make art modern, all these corruptions of our original promises mirror the worst features of our marketing society. All too often, while our shirts, haircut and jewelry may look different, our basic attitudes are not too dissimilar from the ones that prevail in the mass culture we so vehemently criticize. Only last week I heard a group of painters and sculptors discuss the "image" of American art (not the "image" *in* American art but *of*), the need for a public relations program to put the American artist "across." They evaluated promotion methods and talked of strategy. Substantially their meeting was not much different from a meeting on Madison Avenue. It was only less competently conducted.

At the periphery of our arts and crafts the gradual surrender of our ideals to a mass culture society are even more obvious. The art-industry-sponsored art-and-craft-fun craze, the do-it-yourself-kits, the craft-through-joy lectures at schools and museums are some of our own contributions to the general confusion between the sacred and the profane which characterizes our mass culture. Only yesterday I read about the "Picasso," a new apartment house with a lobby that has been "especially created by Albert Lefcoutre in the spirit of Picasso."

To be artists or craftsmen in an industrial society does not give us immunity. An ugly piece of handwoven cloth is worse than a good machine-woven fabric, an ugly hand-turned vase is no better than an ugly whisky decanter, a dishonest painting is more immoral than an honest magazine illustration. Nor is our traditional individualism a guarantee against conformism. We set up behavior patterns as quickly as a group of Levittown housewives. As one who looks at hundreds of portfolios each year let me tell you that individualism has long ceased to be an earmark of the artist.

And yet ours is the role to remind man that the comforts of his little luxuries may be lulling him into new forms of slavery. Ours the duty, through our work, to state our faith in his basic condition, in his primal simplicity. Ours the power to remind him who and what he is.



For philosophers and cab drivers: is technology unnatural?

JOHN A. KOUWENHOVEN
Professor of English
Columbia University

For people in general these days, there is an implicit assumption that whatever is wrong or disappointing about the industrial society in which we live can be cured, or at least ameliorated, by reviving or adapting the values we inherit from a reputedly happier time when society was based upon agriculture and handicraft commerce. One encounters this assumption everywhere from the *Reader's Digest* to the *Partisan Review*, from the Harvard report on general education to the editorials in the *Chicago Tribune*. It is, generally speaking, an article of faith among professional philosophers and cab-drivers, artists and salesmen, that science and technology, which are the dynamic forces shaping our society, are either merely neutral (atomic energy is neither good nor bad in itself; it's what the politicians or generals or doctors do with it that matters) or they are essentially inhuman and evil (the assembly line), tending inevitably to dwarf our individuality and reduce us all to mechanical fragments in an inhuman chaos. Either way, science and technology look pretty scary, and a society based upon them is obviously in need of a good strong infusion of those time-tested values which you craftsmen, and, for that matter, we professors of liberal arts, make it our business to preserve and cultivate.

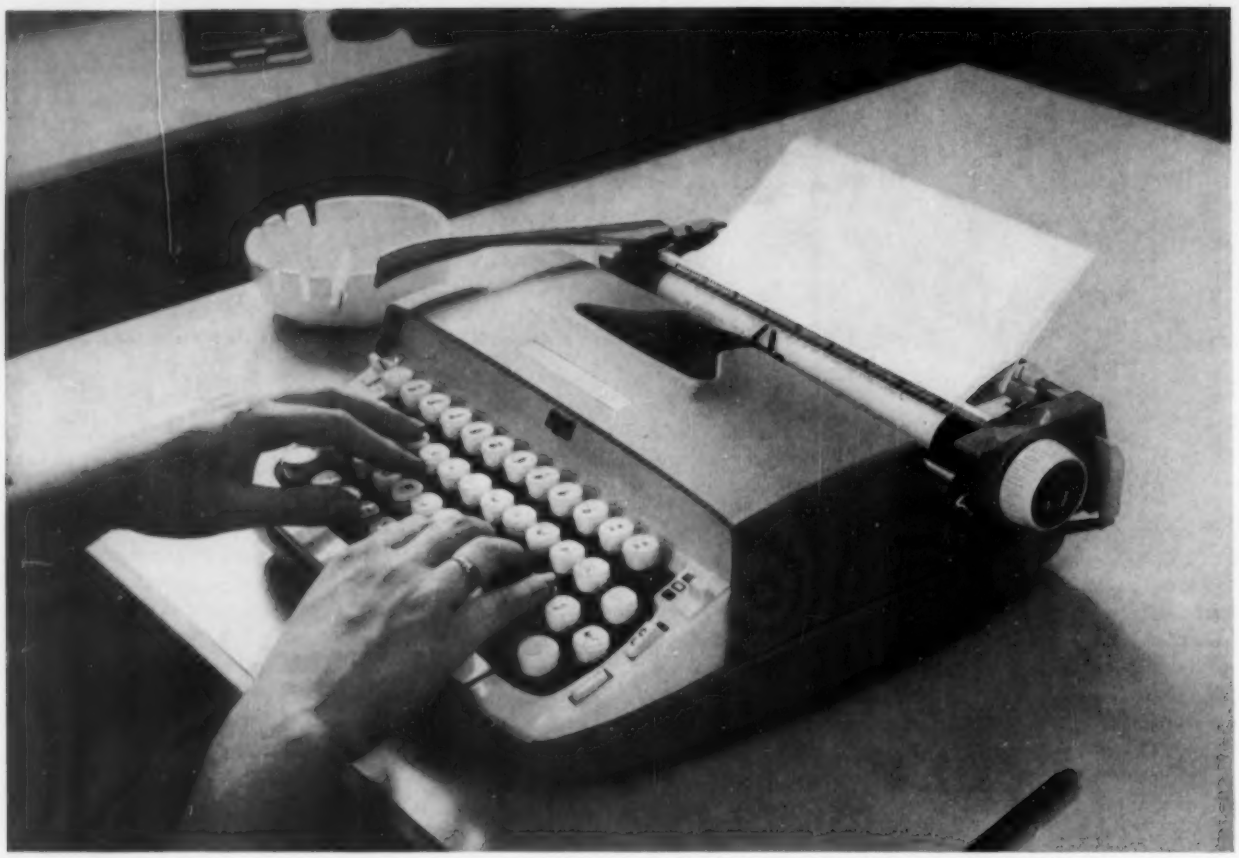
At a recent symposium on "The New View of Man" to which notable scholars in various fields contributed, a distinguished Harvard professor produced a paragraph which can serve as a characteristic sample of the spontaneous overflow of anti-technological emotion. He was talking about the split between the artist and society, and, like everyone else, he traced that split to the industrial revolution, which during the past century and a half has "mechanized our lives and our outlook." Life in industrial society is unnatural, he said, because:

"A man and his family are no longer, even in the country, a self-sufficient community, living close to a stable tradition and the processes of nature, but are mobile, isolated, rootless atoms, dependent upon a multitude of external agencies. Unless he makes a determined effort, an effort that invites the label of eccentricity, modern man loses the use of his hands and his feet and his senses, not to mention the time and capacity for reflection."

I have quoted at such length because the rhetoric of this passage fascinates me. The tune is so familiar we could all whistle it once we have heard the opening measures. It is full of haunting phrases which remind us of one another, like the songs of our childhood: "self-sufficient community," "stable tradition," and "close to nature" (the slight variation of this last phrase, "close to the processes of nature," won't throw anyone off the tune), and, in a sort of simple counterpoint with these nostalgic bits, we hear "mobile, isolated, rootless," "loses the use of his hands and feet," and "no time for reflection." (I missed "frenetic hurry" and "robot" here — but one can't have everything.)

But what does it mean to say that man's life in pre-industrial society was "natural," while the life of man today is not? Is it not "natural" for man to make tools, and to power those tools with machines, and to use those tools to remake his environment? What is "unnatural" about being mobile? Were we not born with legs and endowed by nature with minds capable of conceiving of the wheel and a motor to drive it? Is mobility on wheels less "natural" than mobility on legs, or only less brutish and more "human"? And what is unnatural about a restless atom? Could there be anything more unnatural than an atom *with* roots? Are a man and his family who have television, a car, and a telephone really more "isolated" than those who herded sheep in Palestine two thousand years ago, or those who lived in 18th century English country houses? Are stable traditions more natural than unstable ones? And are the processes of nature, to which we like to think of being close, really stable, or as Heisenberg's uncertainty principle suggests, at best relatively so? And isn't it curious that a society which has deprived all but the eccentric of the use of their feet and hands and senses, regularly cracks the four-minute mile, buys fishing rods and skis in unprecedented quantities, operates turret lathes and typewriters with such dextrous grace, and has learned to respond creatively to sensory stimuli which, without the microscopes and x-rays and other resources technology and science have put at our disposal, man would never have seen or felt or heard.

In short, are not all of these deprecatory comparisons of the "natural" life of the old days with the "unnatural" life of our own society either meaningless or — worse — a sentimental refuge from thinking out about the challenge which our society really offers us? For there is a challenge involved, as there always has been and will be. Life attends to that.



The new portable incorporates first major design changes in ten years

SMITH-CORONA REDESIGNS ITS 1949 PORTABLE

New design emphasizes human engineering factors and use of plastics and aluminum

In the old days, the "test of time" was figured in centuries, but in an age of rapid—when not frantic—product innovation, a few years seems to be sufficient. Smith-Corona's 1949 portable has been a notable success for a decade. The basic mechanism and jacketing have remained untouched, except for minor refinements, since its original production. It has been outselling all competing products; it has been exhibited as "good design" in a number of shows; and it is currently traveling in the "20th Century Design U. S. A." exhibit. That machine, although it has stood a modern—or at least contemporary—test of time, has just been redesigned.

Smith-Corona's decision to bring out a completely new model was based on several considerations: the company wanted to make use of recent advances in materials technology; some of the existing tooling was wearing out and would have had to be replaced in any case; competitive machines had been redesigned and updated structurally; and the company's marketing personnel believed that, unless changes in design were made, old customers in need of new typewriters might turn to competitive products. Furthermore, a new model would provide an opportunity to tie the portable to the corporate identity program which had been launched in June, 1958 with the merger of Smith-Corona and Marchant Calculators, Inc.

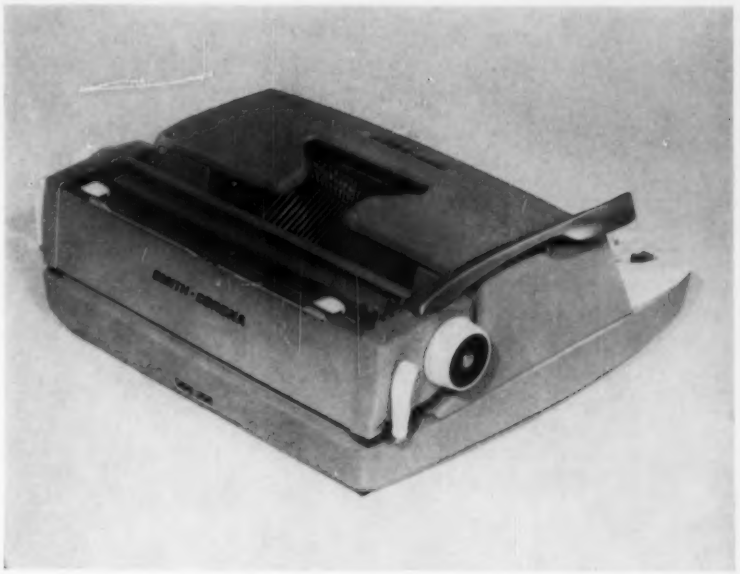
These considerations outweighed the company's entire satisfaction with the quality and sales of the 1949 product, and, as a result, a redesign project was begun. Stevens-Chase Design Associates, of Camillus, N. Y., were called upon to create the new model in close collaboration with company engineers headed by Edson G. Moshier, Vice-President of Engineering, and Aaron C. Zeamer, Manager of Portable Typewriter Engineering. The result is a design whose streamlined angularity furnishes the most obvious contrast with the curvilinear modeling of its predecessor, but which, more importantly, incorporates the latest advances in technology and market research.

Aluminum and new plastics materials have been used to reduce the overall weight of the machine, to subdue its noise, to improve its appearance, and to increase the ease and speed of its operation. Aluminum replaces steel in the manufacture of the shell, the carriage, the paper bail, and the segment (the part that holds the type bars). By using aluminum for the segment, the designers were able to reduce the weight of the machine by eight ounces.

Plastics have been used for several

1 *Although Smith-Corona and Marchant Calculators merged in 1958, taking the name, Smith-Corona Marchant, the logo "Smith-Corona," seen on rear panel, has been retained because of its proven sales value.*

2 *The top cover of the mechanism glides forward towards the operator, exposing the ribbon carrier and spool mechanisms for easier ribbon replacement. Cover is made of formed aluminum.*



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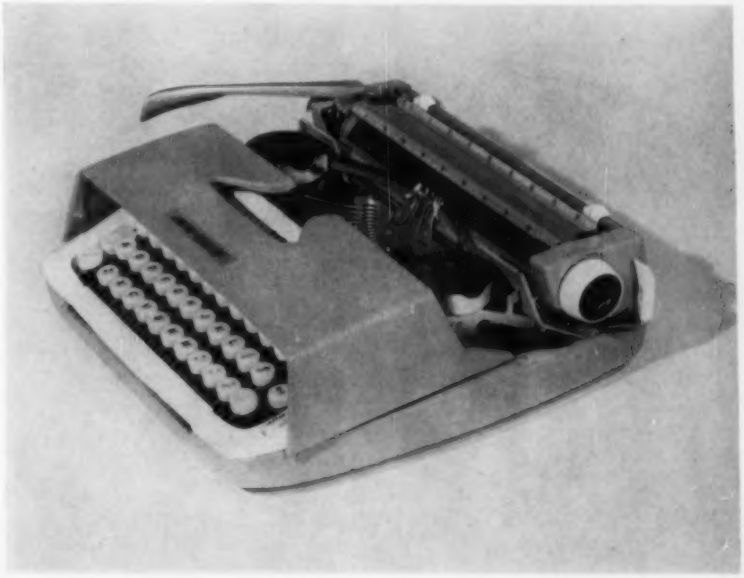

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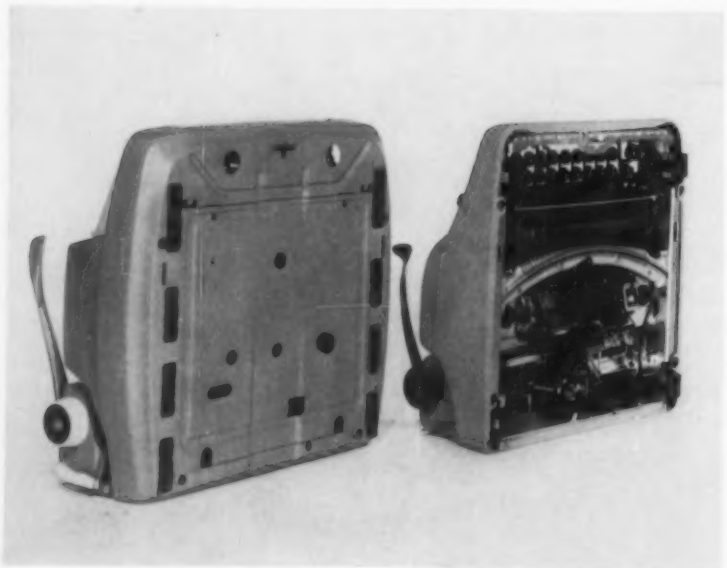
3 *The margin-setting device is equipped with plastic knobs designed to give greater finger contact. Thumb-groove in top surface of end-cover permits manual operation of carriage.*

4 *Where the open base of the 1949 model (right) stood on legs, the under-surface of the new model is enclosed, providing a flat resting-area which reduces "table creep."*

3



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other parts of the 1959 model. The keyboard guard and carriage end-covers are made of Rohm and Haas Implex, the ribbon color selector button of Eastman Tenite, and the carriage tracking pinion, which now provides quieter carriage travel, of Delrin, DuPont's new acetal.

Consideration of human factors — on the basis of which Stevens-Chase conducted tests of all control functions— accounts for many of the more important changes to be found in the present model. To facilitate ribbon replacement, the design team provided a top cover which opens by sliding forward towards the operator, where formerly it was lifted on hinges. The ribbon carrier and spool mechanisms are thus more completely exposed (2) for easier ribbon insertion. Controls which do not have to be mounted on the carriage—tabulator set and clear, touch selector, and ribbon color selector — have been taken out from under the cover and installed in the keyboard area for easier accessibility. The paper bail, which is now an extruded aluminum strip instead of a steel bar with rubber rollers, is marked with a paper scale which affords the operator greater ease in setting and checking the paper's position. To reduce "table creep," a characteristic difficulty with portables, the designers removed the feet from the base of the machine, allowing it to rest on the flat under-surface of the shell (4, left).

The plastic platen knobs have been integrated with the carriage to improve finger gripping and make it easier to twirl the knob while inserting paper in the typewriter. Integration of the platen knobs does not, however, permit the operator to pull the carriage with his fingers. This disadvantage was overcome with what the designers regard as an improvement: a new depression was formed in the carriage end-cover in order to allow the operator's thumb to control carriage movement (3).

Reversing the color-scheme of the 1949 model, Stevens-Chase made the keyboard and keybuttons of a soft white with letters and figures in black—an arrangement the designers believe will reduce eye fatigue. The shape of the buttons is the same on the new model as on the old, but a recessed skirt has been added to each button to make the keyboard generally more attractive.

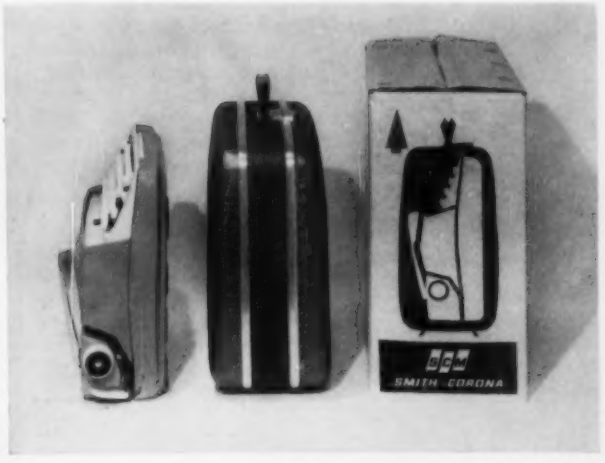
The new model, which is called the Galaxie, will bear the graphic design which Smith-Corona Marchant has chosen for its corporate identity symbol: a tribar S C M in block italics, white on black.

5

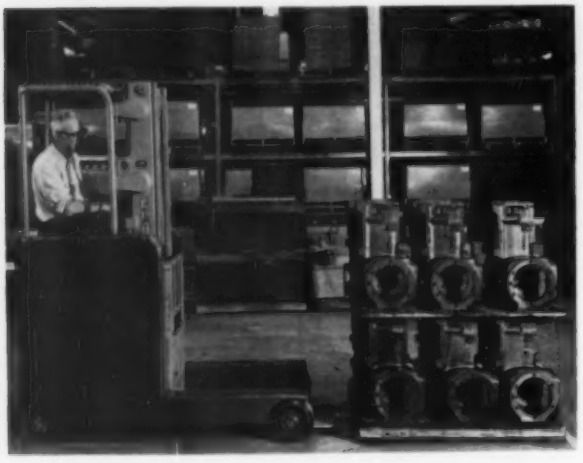
5 *Colors for the new model (left) are tan, red, green, gray, and blue. They were chosen after research on market trends in the colors of other products, interiors, and fashions.*

6 *The carrying-case is made of vinyl bonded to aluminum and then deep-drawn. Rigidity of center section is provided by rolled-on aluminum extrusions which interlock at handle.*

6



Materials Handling Equipment, besides being more maneuverable (one truck moves like a crab and several will navigate narrow aisles and turn in short radius) appear to show increased regard for the operator's comfort and safety: a seat based on human engineering studies is optional on one manufacturer's line, several others pad the cab with foam rubber, and the controls of still a third are shaped to suggest the directional functions they perform.



1

CLARK NR-40 narrow-aisle lift truck has directional controls whose shape communicates their function. Fluting along handle of master control (above, far right) and elliptical knob of auxiliary control (above, right) permit operator to touch-read directional changes. Both controls are molded of plastisols that stay warm to the touch in freezing temperatures. Harley Earl Associates, consultant design.

2

AUTOMATIC'S Transveyor "Crab" truck travels in any direction, at any angle, with any shaped load. It can about-face in a 70-inch circle. Staff design; B. I. Ulinski, director of design and development.

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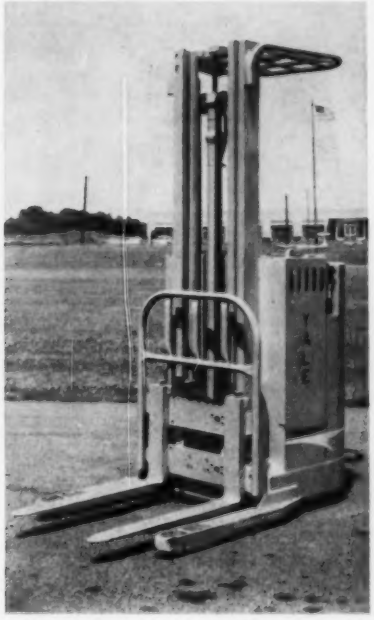


7

3 YALE & TOWNE gas and LP-gas powered trucks have louver-like bars over grille, pitched to direct hot exhaust away from bystanders. Staff design.

4 HYSTER Straddle Truck for lumber and similar loads re-positions frame and body members for better fore-and-aft visibility, as well as clear view of load beneath. Henry Dreyfuss, consultant design.

5 HYSTER SpaceSaver-100, like all firm's lift trucks, is available with contoured seat that slides on diagonal track to adjust to operator's proportions. Henry Dreyfuss, consultant design.

6 YALE & TOWNE Warehouser narrow-aisle truck has firm's new nested I-beam mast used on all high-capacity models for load rigidity. Staff design.

7 AUTOMATIC's heavy-duty Elbow-lift for steel mill operations has battery-operated, 72-volt system that lifts 20,000 pounds. Plexiglas side guards provide additional driver safety. Staff design; B. I. Ulinski, director of design and development.

Tractors and Earth-Moving Equipment are taking on some of the steering refinements — as well as the styling — of automobile design. One tractor offers three choices of steering, all automatic; another has power-shift transmission; and in almost all cases the front housing is squared-off and sharply faceted. For efficiency-minded farmers, a new trailer-mounted crop-dryer attaches directly to wagons, blows warm air into three grain-loads simultaneously.

1 JOHN DEERE 10-ton tractor will lift, as well as draw, equipment weighing up to 3 tons, will have a line of attachments capitalizing on this. Staff design with Henry Dreyfuss, consultant.

2 LETOURNEAU-WESTINGHOUSE Tournapull earth mover now offers V-8 diesel engine, has slightly altered grille (hooded lights, modified logo) adapted from former design by Painter, Teague & Petertil.

3 CATERPILLAR has added power shift transmission to D8, D9 tractors, arranges gear selection in U-shape with three forward speeds on one leg, three reverse on other; neutral is at base of U. Staff design.

1

2

3

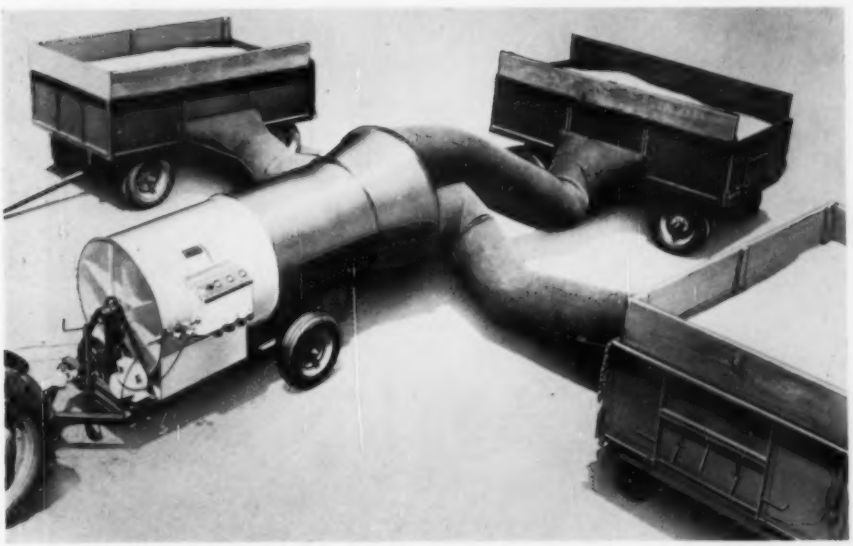
4 OLIVER Trans-O-matic 5-ton crawler tractor has counter-rotating tracks with independent control for each track, making possible three steering choices: operator can spot-turn on one track, turn gradually within any radius on both, or turn with one track in forward, other in reverse. Staff design; John Tomko, chief engineer.

4

5

5 YALE & TOWNE Trojan tractor shovel is matrix model for re-designed appearance for all Trojan line. Side plate is one piece to avoid weld undercuts in stress areas, front bumper is integral part of frame, front lights are recessed. Staff design; Charles Jacobus, chief engineer.

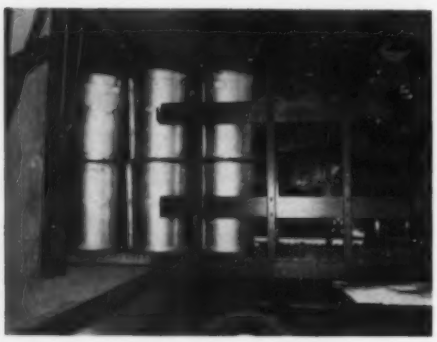
6



6 INTERNATIONAL HARVESTER mobile crop-dryer, McCormick-Finco, a cylindrical blower mounted on a trailer, has three canvas ducts for drying crops in three wagons at once, and may also be fitted with a fourth, large duct for drying in barn, bin, or crib. Staff design.

Farm Machinery is keeping abreast—and sometimes ahead—of modern agriculture (larger and larger acreages farmed by fewer and fewer men) by covering more ground and speeding up operations on each trip down the line: a cultivator handles eight rows at once, a fruit-collector substitutes hoist and rollers for the hired man's brawn. And the once hot and dusty job of harvesting grain can be done from the comfort of a combine with an air-conditioned, tinted-glass cab.

1



1 HAWLEY PRODUCTS citrus handling system hauls harvest from grove to packing plant in lightweight resin-treated molded cellulose drums which are hoisted by driver-operated controls onto roller bed trailer, where they are stacked two-deep and held in place by hinged plates that automatically drop from superstructure. Each drum holds 250 pounds. Drums by Western Molded Fibre Products; system, Hawley Products staff design.

2 ALLIS-CHALMERS side-mounted mower has box-type frame for greater strength, twin-wheel drive to reduce vibration. A spring-loaded idler wheel rests on V-belt to prevent cutters from slipping on tough or heavy stands of grain.

2

3 NEW HOLLAND crop-chopper, specifically designed to look different from competitive machines with similar function, has purposeful fins to separate standing crop from swath being chopped. Staff design; C. J. Kermes, product stylist.

4 INTERNATIONAL HARVESTER experimental 8-row Farmall cultivator-planter for big acreages has outboard gauge wheels to maintain depth control, handles as easily as 4-row models. Staff design.

3

4

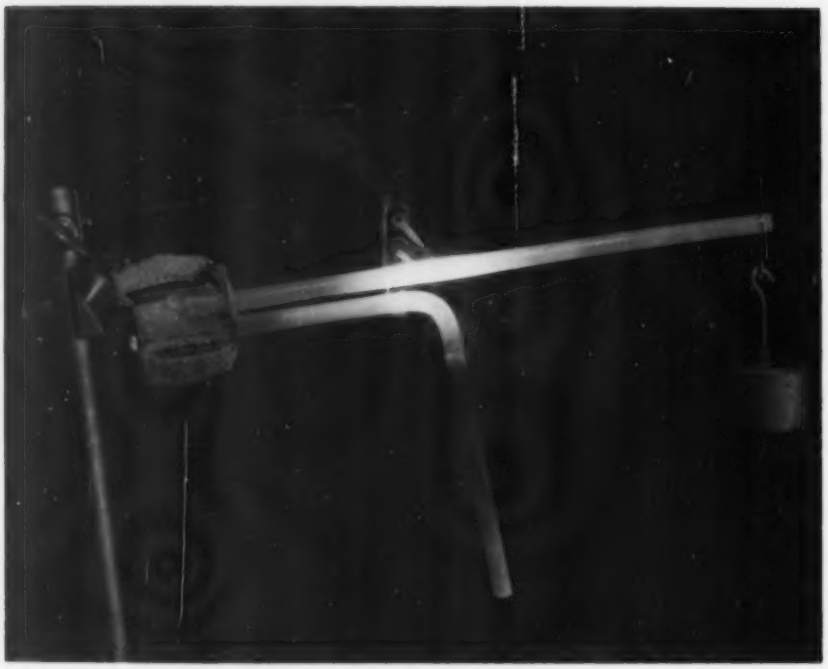
5

6

5 INTERNATIONAL HARVESTER has added air-conditioned cab to McCormick harvester-threshers. Cab is also insulated against noise, and has tinted, angled window to cut sun glare. Staff design.

6 NEW HOLLAND self-propelled baler coordinates elements with varying functions (motor, rake, binder, steering) into one visual unit. Staff design; C. J. Kermes, stylist.

TECHNICS *a catalog of new products, materials, processes and finishes*



New translucent ceramic can withstand great heat

A new ceramic material which transmits light, has the strength of alumina ceramics, can withstand much higher temperatures than most similar materials now in use, and can be pressed into any shape desired, has just been announced by General Electric. The new ceramic (above) demonstrates its heat resistence graphically: a bar of the material, called Lucalox, and a bar of fused quartz are heated by a blow torch. At a temperature of 2350°F. the bar of quartz bends under its own weight; the bar of Lucalox supports a 50-gram weight, even up to a temperature of 3200°F.

Lucalox is made from powdered aluminum oxide. It is related to sapphire and ruby gem stones, which are single-crystal aluminum oxide. General Electric's polycrystalline form is said to be superior to the gems in its ability to withstand high temperatures without deforming. GE claims that Lucalox has the composition of a ceramic, the structure of a metal, and the light-transmitting qualities of some translucent glasses.

The characteristics of Lucalox result from the fact that the small pores or "bubbles" generally found in ceramics have been eliminated. Source: General Electric Company, Schenectady 5, N. Y.

Color-corrected lens

A "superchromat" lens, the first to be corrected for all colors of visible light, has now been announced by the Kodak Research Laboratories. Current lenses represent a compromise in that different colors, having different wave lengths, focus through a simple lens on slightly different planes. Thus, when one color is in perfect focus, all others are not. A compromise focus is possible, and a compromise optical correction is preferable, but the difference in focus, called chromatic aberration, is always present to some degree.

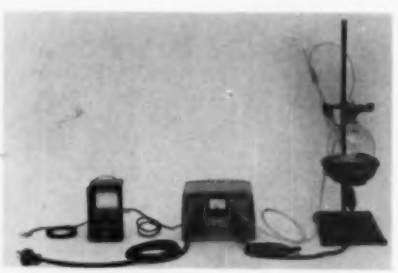
With special glasses called "short-flints," it was possible to correct some three-element lenses for three colors only. These lenses were known as apochromats. The use of fluorite has been also beneficial, but fluorite changes its refractive index with temperature.

Recently Dr. Max Herzberger, of Kodak, devised a lens of three kinds of glass which, according to Kodak, renders all colors in perfect focus. Kodak is working on an application of this discovery for commercial camera lenses. Source: Eastman Kodak Company, Rochester 4, New York.

Automatic temperature control

A means of controlling the temperature of gases and liquids within a tolerance of + or — 0.1°C. has been announced by the Milltown Instrument Company. The purpose of the instrument (below) is to regulate the temperature of flowing liquids or gases in industrial or scientific processes, and it is, in effect, a highly accurate thermostat.

In the laboratory set-up in the photograph, the sensing element is a column of mercury in a thermometer attached to the gas-filled flask. The level of the mercury is sensed, in turn, by an electrode attached to the outside of the thermometer. The elec-



trode actuates a transistorized control mechanism which compensates for the differences between the actual and set temperatures. A third element, at far left, is the recorder. Manufacturer: Milton Instrument Company, Milltown, N. J.

Vibrations and shock isolators

A line of isolators designed to protect sensitive electronic equipment from shock is being marketed by MB Electronics, a division of Textron Electronics, Inc. These

isolators are designed to provide vibration protection at higher temperatures encountered in missiles. Equipment such as radar antennae, for example, require effective isolation from high-frequency vibration. However, the new mounts (pictured below), can also be used for other equipment.

The isolators consist of two springs mounted in opposition, with a built-in

damper assembly to prevent resonant build-up. The diameter of the springs, the wire diameter, the assembled length, the number of turns of wire in the spring, and the helix angle of the spring are so controlled as to provide the desired spring rates in directions parallel to and perpendicular to the axis of the isolator. Manufacturer: MB Electronics, New Haven 8, Connecticut.

Water-soluble resin

The introduction of a water-soluble resin designed to produce clear gels of alcohol, glycerine, or water has been announced by the Goodrich Chemical Company. The new material called Carbopol 940 is a white powder similar to Carbopol 934, introduced last year. The major difference between the two is that Carbopol 940 can form extremely clear gels, specially for use in cosmetics. The resin is used for thickening and making creams or jellies smoother, eliminating drying and separation. Manufacturer: B. F. Goodrich, Akron, Ohio.

Copper paste for circuit printing

A new method for producing printed wiring directly on ceramic bases without the use of adhesives has been developed at Bell Telephone Laboratories. The basis of the new process, which uses standard silk screening techniques for forming the pattern, is a specially formulated copper-bearing paste. Following the printing of the pattern in the ceramic base, the piece is fired in a two-stop process, resulting in a clean, durable pattern with good electrical characteristics. Source: Bell Telephone Laboratories, New York City, N. Y.

Safety device for offshore drilling

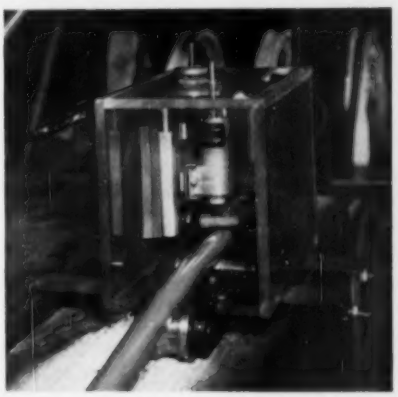
An ingenious safety device has been developed by R. G. LeTourneau to provide stability for huge off-shore drilling platforms. The device consists of a self-leveling mechanism meant to control each leg individually. If a faulty ocean bottom causes the drilling platform to tilt, the self-leveling system goes into action automatically so the platform can be brought into perfect horizontal position again.

The device employs a pendulum arrange-

ment for each leg. If the ocean floor gives beneath one leg, the pendulum facing that leg will swing, causing an electrical circuit to close. The circuit actuates a relay which blows a warning horn and energizes the motors which are regularly used in raising and lowering the platform on that leg. As soon as the platform is level again, the pendulum will go back to its original position and open the circuit, thus stopping the motors and silencing the horn. Manufacturer: R. G. LeTourneau, Inc., 2339 South MacArthur, Longview, Texas.

Measuring-controlling device

A device to translate displacement, or position-change into an electrical signal has been developed by Automatic Timing and Controls, Inc. This is accomplished by



means of a transformer which generates a signal directly proportional to the displacement of its armature from the electrical center of its winding.

This differential transformer can be used in a variety of control functions. In the photograph it is being used to measure the thickness of a hose to a small tolerance. Manufacturer: Automatic Timing and Controls, Inc., King of Prussia, Pennsylvania.

Steel door with honeycomb core

A steel door with a cellular core is being made by the Steelcraft Manufacturing Company. While honeycomb sandwich construction has been used in other fields, this is the first application to steel doors. Kraft fiber is first impregnated with phenolic resin. This honeycomb is then sandwiched between two panels of 18-gage steel and bonded by an adhesive. Finally, the steel is welded around the edges, and ground smooth to make an especially strong seamless door. Manufacturer: Steelcraft Manufacturing Company, 9017 Blue Ash Road, Cincinnati, Ohio.

Electricity shapes metals

A machine which creates a "spark bomb" to form metal shapes without the use of motors or presses has been developed by the Republic Aircraft Corporation. The device stores up electrical energy and then releases it within 40 millionths of a second with a force equal to 6,000 horsepower. The significance of this device, called a "spark bomb," is that it offers a solution to the problem of working with high-strength metals used in the production of advanced aircraft. Some of the newer steel and titanium alloys and other exotic materials have practically no "stretchability," and require tremendous force to shape them to the close tolerances and smoothness needed on the newest aircraft. The "spark bomb" uses a high pressure, explosive force to shape these metals.

Operating on the same principle as lightning, the spark bomb gives a high voltage spark with tremendous power. Wires from the plus and minus terminals are attached to electrodes immersed in water. When a switch is released, the energy is released, complete with flash and thunderclap. The shock wave travels through the water and it is this wave which can be utilized to do the forming work. The amount of power depends on the amount of electrical energy stored and the length of time required to release it. If engineers can reduce the discharge time to less than 40 millionths of a second, they will increase the power even more.

The explosion forming technique is now being used, but with conventional explosives, such as dynamite and TNT. The electrical discharge method has the advantage of safety and more control. However, perfect control is not yet possible since the exact directions that the sparks will travel are not known. Inaccuracies are also due to the fact that water is slightly compressible.

According to engineers of the Republic Aircraft Corporation, it is possible that the spark bomb will replace the conventional hydraulic presses for forming hard metals because of its smaller size and lower cost. Source: Republic Aircraft Corporation, Farmingdale, New York.

Silent ceiling

A line of accoustical ceiling panels has been introduced by the Kaiser Gypsum Company. These new ceiling panels are perforated with tiny pinholes which, according to the manufacturers, absorb up to 70% of all sound striking the ceiling. The Kaiser Gypsum ceiling panels were created by San Francisco designer Emily Novak and are available in pastel colors intended for application in residential interiors. Although sound-absorbing ceilings are not new, the production of a decorated line intended for home-decorating use is an innovation. Manufacturer: Kaiser Gypsum Company, Kaiser Building, Oakland 12, California.

Glass protects steel baffle

A lightweight, heat-resistant silica material has solved a corrosion problem in some furnaces. Crude oil, passing through a refining furnace before feeding into fractionating towers, is heated in tubes which are, in turn, heated by fuel burned at the bottom of the furnace. A baffle is hung on the top of the furnace to retain the heat.

However, these baffles, which were made of insulated alloy steel, were attacked by the vanadium pentozide in the rising, heated gases.

Foamsil, a product of the Pittsburgh Corning Corporation, was found to resist the corrosive action of the heat and gases. The silica material was formed into blocks and built into a framework to produce the new baffle (above). Manufacturer: Pittsburgh Corning Corporation, One Gateway Center, Pittsburgh 22, Pennsylvania.

Pump for corrosive materials

To meet a need for a method of sampling liquids where any contamination must be avoided, the W & W Manufacturing Company has developed a vacuum pump which can transport the material without its ever coming in contact with the pumping mechanism.

The pump (top of next column) is said to be capable of handling liquids to the consistency of syrup, as well as powdered solids that have a tendency to "slump" or seek their own level. The lift of the pump is about 25 feet of water at sea level. Material to be pumped passes through sanitary or sterilized tubing directly to the sampling container without touching the pump machinery which might contaminate it. The motive power is provided by the vacuum created in the sampling container on the up-stroke of the pump handle. Easy

cleaning is said to be one of the device's advantages. Manufacturer: W & W Manufacturing Company, P. O. Box 9311, Chicago 90, Illinois.

Nickel-cadmium batteries

A selection of compact, rechargeable, and sealed, nickel-cadmium batteries and cells (below) designed for battery operated devices requiring high energy has been in-

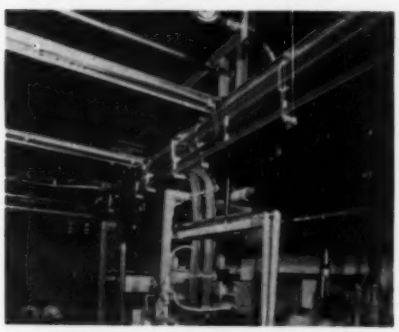
troduced by the Burgess Battery Company. The hermetically sealed construction of the new units is said to eliminate routine maintenance and the liquid additives required in earlier nickel-cadmium batteries.

The new batteries will be marketed in eight sizes, as well as a range of multiple-cell batteries in different voltages. The individual cells, rated at 1.25 volts, include six button-type units ranging from a cell only .4-inch in diameter, to one slightly larger than a silver dollar. The development of a silver wax inter-cell connection makes possible a flexibility of battery designs, according to Burgess. A dab of silver wax on the positive or negative sides of each cell permits the batteries to be connected in series simply by being stacked in a column. The ability of this wax to press itself to any contour between the cells assures the connection. Recharging is said to be possible hundreds of times and the batteries are not affected adversely

by the speed of the charge or by long periods of idleness. The nickel-cadmium batteries will operate at temperatures between 0° and 115° F. Manufacturer: Burgess Battery Company, Freeport, Illinois.

Rubber bonded to steel

A method of bonding rubber to steel has been developed by the Goodyear Tire and Rubber Company in the course of a project involving a lining for a steel-pickling tank of 33½ tons. A rubber lining consisting of sheets of semi-hard, specially compounded rubber was applied to the inside of the tank to protect it against the corrosive effects of acids used in the steel-pickling process. Goodyear's method involves shot-blasting the inside surface of the tank, then coating it with a special adhesive and sheets of acid-resistant rubber lining. In the final steps, the rubber is cured, or bonded to the inside of the tank by means of steam pressure. Source: Goodyear Tire & Rubber Company, Akron 16, Ohio.



Nylon tubing in continuous lengths

A nylon tubing which can be extruded in continuous lengths has been developed by the Allied Chemical Corporation. The tubing, called Plaskon nylon tubing, is shown (above) providing a covering as well as a color coded system for wiring. According to the manufacturers, such a system saves considerable money compared to the conventional copper tubing. Manufacturers: Allied Chemical Corporation, New York 6, New York.

Zinc plating for wires

A new zinc plating process in six colors, which can provide wires and assemblies with corrosion and rust resistance, and in addition offer visual appeal, has been developed by the E. H. Titchener Company. The coating process is available in blue, blue-green, purple, pink, copper or brass, and is applied to the basic wire, then given a chromate treatment and a clear baked-lacquer coating. The decorated wire can be used to adorn almost any equipment. Manufacturer: E. H. Titchener & Company, 57 Clinton Street, Binghampton, New York.

Fast action radiant heater

An industrial radiant heater designed to warm up and cool off quickly has been designed by Corning Glass Works for industrial processes requiring rapid drying, baking and curing. The tubular unit reaches full heating capacity of up to 850° F. within three minutes. Since the heater will cool quickly also, expensive equipment for diverting the heat after production is stopped, is made unnecessary. In some industrial operations, such as drying paper, unless the heat is diverted immediately, a fire will result.

The radiant heater (above) is designed for horizontal mounting above or below the production line, the high-watt density heater producing an average of 20 watts per square inch of working surface. A triple reflector system directs up to 90% of the heat onto the work. The housing consists of two layers of aluminized steel and contains fiberglass insulation. Manufacturer: Corning Glass Company, Corning, New York.

Low-denier polypropylene fiber

Commercial production of low-denier polypropylene fiber has been announced by Reeves Brothers, Inc. The new fiber will be available both as a staple and in the form of continuous multi-filament yarns. Gages of individual filaments range from three to 22 denier, although the yarns can be supplied in a range to meet specific requirements. Manufacturer: Reeves Brothers, Inc., 1071 Sixth Avenue, New York City.

Spheres to fill cavities

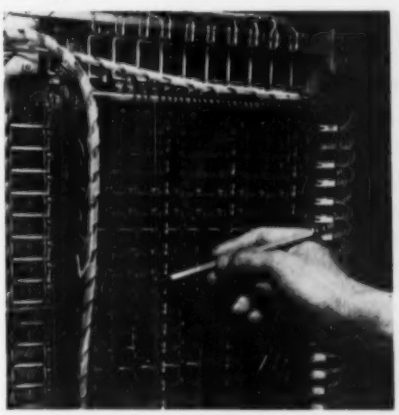
Mallory 1000 high density metal, a homogeneous alloy of tungsten, nickel and copper, now comes in spheres (above, right) which can be poured like sand to fill containers of any shape. The new spheres will be useful in forming shields for radioactive materials at the site, without machining or fitting blocks of lead. If the shape of the container is altered, these spheres can be reused. The Mallory 1000 spheres show high absorptive powers of radiation, and can be used in temperatures of up to 750° C. where other materials, such as lead, would melt. (If the metal were to melt, the absorptive properties would decrease). Although the spheres are intended primarily for use where a shield against radiation is necessary, and high-density metal is needed, other uses for them might be for metal fillings, such as in rollers, which could be emptied when necessary.

The diameters of the spheres are from 1/16" to ¼". They are essentially round, but do not have the tolerance of ground

balls. The density of individual spheres is 16.7 to 17.0 g/cc. Manufacturer: P. R. Mallory & Company, 3029 East Washington Street, Indianapolis, Indiana.

Stainless steel switch

A crossbar switch made of stainless steel is now being made by James Cunningham Son & Company. The special steel is said to withstand the considerable stresses to which a crossbar switch is subjected. In the picture (below) the pencil points to the switch in use in a spring and rocker arm assembly. Manufacturer: Allegheny Ludlum Steel Corporation, Pittsburgh 22, Pennsylvania.



Adhesive on cloth

The cost of non-structural honeycomb sandwiches has been reduced by the introduction of an inexpensive and easy-to-handle bonding material consisting of cotton cloth and a partially cured phenolic resin, according to its manufacturer, Narmco Resins.

The new material, called Narmtape 105 (above) comes in continuous rolls that may be cut to size with scissors or textile cutters. The tailored sections are then laid in place, and the assembled sandwich heated under slight pressure in order to get the desired bond.

It is said that this material reduces the cost of sandwich assemblies compared with competitive adhesives for honeycomb assemblies. Honeycomb bonding presents a special problem, since the adhesive must fasten the cell walls at right angles to the outer skin, and the cut is rarely sufficiently flat to allow all cell edges to meet the skin perfectly. Enough adhesive, therefore, must be present to bridge any gaps.

The resin in the Narmtape cloth softens to flow and fill the gaps under pressure and heat, and afterwards, hardens to form a plastic film of great strength. Manufacturer: Narmco Resins & Coatings Corporation, 600 Victoria Street, Costa Mesa, California.

Fireproof wood

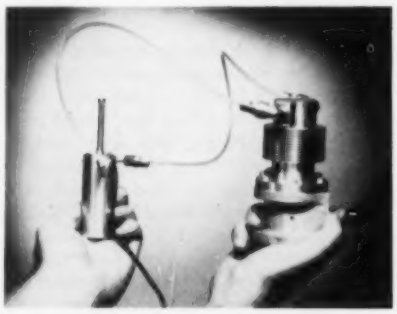
A new means of fireproofing wooden buildings has been devised by the Cross, Austin and Ireland Lumber Company. They say that buildings of wood, to replace those formerly made with steel, are possible with the same degree of safety as with steel. Although methods of fireproofing wood have been known, and practiced, since the times of the ancient Egyptians, the recent methods are most practical for treating large amounts of wood.

In this method a treating solution is prepared in a steel tank of a 5,000 gallon capacity equipped with steam coils for heating and a centrifugal pump for circulation. Mixing is not difficult since all the chemicals used are soluble in water. Heating the water, however, makes the dissolution of the boron compounds quicker. After the water has been fed into the tank, it is heated by steam coils to about 130° F. Then the chemicals are dumped from bags into the mixing tank. The agitation is effected by pump. The mixing solution is stored in a horizontal steel cylinder. Trams carry lumber into the treating cylinder. When the wood is inside the cylinder, the door is sealed. A vacuum pump causes a vacuum to de-aerate the wood. Then the cylinder is filled with about 11,000 gallons of the solution at which point the solution is put under pressure to force it into the wood. The amount of pressure needed depends on the softness of the wood. The wood remains in the solution for about 12 hours.

When the wood is taken out and dried, it resists combustion, according to the company. In the photograph (above) two similar wooden models are set afire, one built of the treated wood, the other of untreated wood. The untreated one is burning. The wood is being marketed now, because of a change in the New York City Fire Department regulations which have declared that fireproof wood will be eligible for new, advantageous, insurance rates. Manufacturer: Cross, Austin & Ireland Lumber Company, 1246 Grand Street, Brooklyn, New York.

Flashlight-sized refrigerator

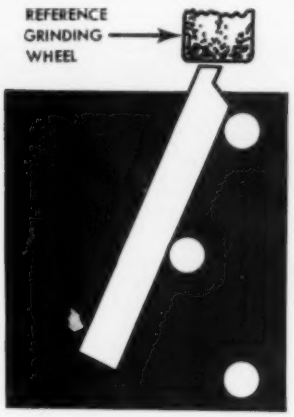
A closed cycle, low-pressure mechanical refrigeration system that can chill infrared cells to any predetermined temperature down to -350° F. has been developed by Arthur D. Little, Inc., Cambridge, Mass.



The system, one of many possible package configurations, is comprised of a cooler, called the min-IR-cooler, (below, left) with a miniature compressor. According to the company, it is the first reliable refrigeration system of this size and weight. The entire unit weighs under 10 pounds, and is thus, according to the manufacturers, ideal for use in aircraft and missiles, where it can provide an infra-red cell with sufficient sensitivity—by cooling it—to "hunt" enemy planes, sensing their position by the heat their engines give off. Manufacturer: Hamilton Standard, Windsor Locks, Conn.

Threading tool grinding fixture

A tool grinding fixture constructed in such a way that tools can be sharpened without considerable setting or adjustment is announced by the Cavic Engineering Company. The fixture (below) consists of a machined block into which the tool can be fixed. The block is set to the desired tool



shape and the tool to be ground is then fixed in and tightened. The block is 2" x 2¾" x 3⅝" and weighs 2¾ pounds. Manufacturer: Cavic Engineering Company, 1313 West Essex Avenue, Kirkwood 22, Missouri.

Safety lamp

An "explosion proof" lamp has been announced by the Burton Manufacturing Company. The new tool is said to be much less expensive than similar lights because of its use of vulcanized, neophrene rubber, in which the lamp is sealed.

The lamp, called a Petlite, is a rated 65,000 candlepower aircraft landing light. The housing provides protection against sparks and shorts in dangerous situations. The Petlite was designed for use in potentially explosive areas of the aircraft industry. Tests carried on by the manufacturers are said to have proven the lamp's safety. Manufacturer: Burton Manufacturing Company, 2500 Colorado Avenue, Santa Monica, California.

Manufacturers' Literature Supplement

A bibliography of currently available technical brochures dealing with materials, methods, components, and machines

Materials—Metals

1. **Welding T-1 Steel.** U.S. Steel. Booklet, "How to Weld U.S. Steel's T-1 Steel," deals with methods of welding the special steel. Included is a guide to heat-input necessary when welding the material. 24 pp.

2. **Decorative Extrusions.** Croname, Inc. Booklet on custom-finished decorative extrusions from aluminum alloys lists varieties of extrusions, applications, finishes possible, and charts dealing with patterns. 15 pp.

3. **Perforated Aluminum Trim.** Bohn Aluminum and Brass Corporation. Brochure illustrates various sorts of trims made by Bohn. 4 pp.

4. **Permanent Magnets.** Indiana Steel Products Company. Bulletin describes the magnetic and material characteristics of Hyflux Alnico V-7 permanent magnets, and applications for them.

5. **High-Strength Steel.** Allegheny Ludlum Steel Corporation. Booklet describes Potomac, a type H-11 steel manufactured by Allegheny, and used in solid propellant rocket cases. The steel is specially resistant to high temperatures, which fits it for this use. Booklet contains graphs and charts on the properties of the hot-work steel. 24 pp.

6. **Specialty Steels.** Carpenter Steel Company. Guide for buyers of specialty steels, includes detailed information on tool and die steels, stainless steels, high temperature alloys, electronic, magnetic and electrical alloys, special purpose alloy steels, and tubing. Included also is a selector chart, and tables which show properties of various types of steel. 40 pp.

7. **High Carbon Steel.** Uddeholm Company of America. Booklet contains information on a high-strength, high-chrome steel. Includes data on steel's characteristics, machinability; with charts on forging, tempering, grinding, and core-hardness. 12 pp.

8. **Pressure Reducing Valves.** Atlas Valve Company. Folder describes company's type-B pressure-reducing valve, which is a single-seat, tight-closure, self-contained valve for use with steam, oil, air, gas or water. 4 pp.

Materials—Plastics

9. **Curing Polyester Resin.** Atlas Powder Company. Two bulletins, both describing Atlas 382, a polyester resin which can be cured at room temperature, contain information on the properties and use of this resin, and tables on its chemical resistance. 11 pp. and 12 pp.

10. **Plastic Extruded Shapes.** National Vulcanized Fiber Company. Bulletin lists company's facilities for producing extruded shapes or fabricated parts from nylon, Delrin acetal resin, or Penton chlorinated polyether resin. 4 pp.

11. **Facts on Phenolics.** Hooker Chemical Corporation. Lists the physical properties of 33 Durez diallyl phthalate molding compounds and three Durez phenolic compounds. Included are charts and photographs of typical products molded with these plastics. 16 pp.

12. **Bakelite Molding Compounds.** Union Carbide Plastics Company. Molding Technical Release No. 26 lists chemical resistance of seven Bakelite phenolic molding compounds to acids, solvents, and common mixtures. Booklet pays special attention to corrosion problems.

Methods

13. **Opposed Compressors.** Clark Brothers Company. Booklet illustrates Clark compressors for the refining, chemical and petrochemical industries, and contains specifications of available compressors.

14. **Roofing Metal.** Follansbee Steel Corporation. Booklet describes properties of terne metal roofing, with illustrations of applications. 8 pp.

15. **Proper Grouting Methods.** Master Builder Company. Booklet describes effective methods for grouting basic types of industrial equipment. Includes diagrams, charts, and photographs. 7 pp.

16. **Abrasives.** Carborundum Company. Booklet lists a treatment of abrasive belt-roll grinding on submarine periscopes. 10 pp.

17. **Concrete Floors.** Master Builders Company. Booklet describes Masterplate reinforced concrete floor which is said to last six times as long as an ordinary concrete floor. Installation is explained with illustrations. 22 pp.

18. **Moisture Damage.** Corrosion Reaction Consultants. Folder describes an inhibitor that displaces and seals out water and moisture, protects metal surfaces against corrosion, and also acts as lubricant. Product is called CRC-2-26 and is a liquid formula developed for use in the electronics field. Illustrated. 6 pp.

19. **Small Crusher.** Allis-Chalmers Manufacturing Company. Bulletin 17B19296 describes mechanical features of the 36-inch Hydrocone crusher which is only 4′ 10″ high, but is said to have advantages of larger machine size. Illustrated.

20. **Printing Calculator.** Remington Rand. Illustrated folder explains function of Remington Rand Model 99 Printing Calculator.

21. **Electric-Eye Mechanism.** Photomation, Inc. Booklet lists applications of miniaturized electric-eye mechanism to counting, sorting, monitoring, assembling and automatic weighing. Diagrams illustrate practical ways of installation and a table on specifications is also included.

22. **Malfunction Detector.** Robertshaw-Fulton Controls Company. Bulletin describes Vibraswitch Model 66 malfunction detector, a vibration-sensitive device which protects machinery that is subject to damage by excessive vibration. 4 pp.

23. **Titanium Bulletin.** Titanium Metals Corporation of America. Booklet discusses specifications of the heat-treatable titanium alloy Ti-4A1-3Mo-1V. 24 pp.

Miscellaneous

24. **Fluorescent Lighting.** Lightolier, Inc. Booklet for the trade discusses company's surface and pendant fluorescent lighting fixtures, with special attention to new textures and materials, new structural details. Specifications are given for all products mentioned. 24 pp.

25. **Tape Recorder.** Ampex Corporation. Brochure describes Ampex FR-600 tape recorder, and gives its electronic specifications and characteristics. 10 pp.

26. **Barrel Finishing.** Carborundum Company. Booklet details barrel-finishing in all its aspects. A complete line of tumbling media, compounds, and finishing machines and equipment is listed. 36 pp.

27. **Optical Equipment.** Keuffel & Esser Company. Catalog lists firm's optical tooling and industrial alignment equipment. 25 pp.

28. **Lubricating Devices.** Trico Fuse Manufacturing Company. Catalog describes firm's devices for lubrication, and its electrical products. 12 pp.

29. **Silver-Zinc Batteries.** Cook Batteries. Illustrated brochure gives design details for over twenty new manual and automatically activated silver-zinc primary batteries. Specification tables show performance, capabilities, energy-to-weight rules, and activation times. 6 pp.

30. **Thermo-electronic Control Amplifier.** Thermo Electric Company. Bulletin describes high-gain dc to ac relay control amplifier and gives detailed information concerning principles of operation, performance ratings, and applications, Illustrations and graphs. 4 pp.

31. **Dye Color Card.** Dyestuff and Chemical Division, General Aniline & Film Corporation. Card illustrates all shades of firm's line of acid dyes for wool. Includes dyeing and fastness tables, index. 157 pp.

32. **Tab Weld Resistors.** Electric Controller and Manufacturing Company. Bulletin 6715 deals with EC & M Tabweld resistors, explains their construction and gives charts on their uses and specifications. 4 pp.

32. **Combination Starters.** Cutler-Hammer, Inc. Folder, ED-30, illustrates and describes complete line of combination, non-reversing starters through NEMA Size 4. 8 pp.

34. **Computer Assembly Routine.** Minneapolis-Honeywell Regulator Company. The automatic routine generating and updating system for the Honeywell 800 edp system, is embodied in this manual called, "Argus Assembly."

35. **Epoxy Adhesives.** H. B. Fuller Company. Booklet offers information on Resiweld epoxy adhesives, sealants, alloys and coatings, and suggests uses for them.

36. **Antenna System.** Entron, Inc. Catalog explains company's Entron Master Television Antenna System, which provides studio monitor reception with one antenna in multi-set installations. 4 pp.

37. **Measuring Systems.** Industrial Nucleonics Corporation. Brochure includes specifications, applications and characteristics of AccuRay continuous-level measurement systems and continuous-density measuring systems, as well as other control methods. Illustrated with charts and photographs. 12 pp.

38. **Motor Controls.** Allis-Chalmers Manufacturing Company. Booklet contains descriptive, pricing, technical, and engineering information on manufacturer's complete line of motor controls.

39. **Annunciator Systems.** Panellit, Inc. Catalog of annunciator systems provides a comprehensive list of Panellit's industrial annuncinators, with material on process-control systems. 52 pp.

40. **Steel Scaffolds.** Baker Scaffolds and Accessories. Brochure describes portable steel scaffolds which are adjustable and are said to assemble easily into safe, rigid structures. 16 pp.

41. **Outdoor Exposure of Container-Grade Paper-Overlaid Veneers.** U.S. Forest Service. Booklet No. 2154 describes results of toughness tests and visual examinations of 16 container-grade veneers which were exposed for a year, outdoors.

42. **Hygrometric Catalog.** American Instrument Company. Catalog contains all the manufacturer's equipment for moisture detection, control, and alarms. Illustrations are included. 69 pp.

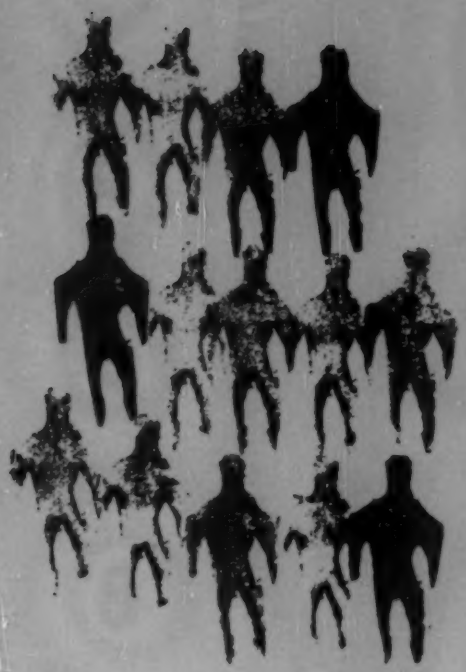
43. **Die-Cast Reference Manual.** American Charcoal Company. Manual contains information on die-casting and articles by various authorities on the subject.

44. **Computer Bibliography.** Remington Rand Corporation. Booklet explains various kinds of computers, and gives advice on which kind of computer to use for specific business operations. Written for both trained and untrained operators. 54 pp.

45. **Spray-Type De-aerating Heaters.** Graver Water Conditioning Company. Bulletin discusses many aspects of the process of spray de-aerating and the equipment used. Illustrations of equipment and accessories.

46. **Drafting Table.** Stacor Equipment Company. Bulletin describes a new kind of drafting table made in France and distributed by the Stacor Company. It is said to hold drawings with exceptional steadiness, in any position.

47. **Latching Switch.** Inertia Switch Company. Bulletin 6UO-115 describes a new latching switch intended for operations where smallness and precision are necessary. The



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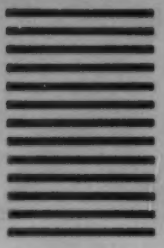

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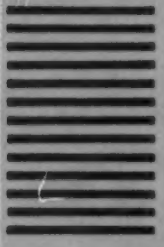

switch is activated electrically, and can operate under adverse gravitational conditions.

48. **Pocket Slide Rule.** Eugene Dietzgen Company. Manual explains the operation of a new small-size slide rule just added to manufacturers' line of drafting tools.

49. **Aluminum Awning Windows.** Ceco Steel Products, Inc. Booklet contains a complete description and listing of available shapes and sizes of company's awning windows, along with possible mechanisms for operation of these windows. 4 pp.

50. **Stainless Steel Comparison Chart.** Frasse & Company. Single-page chart which compares the properties of various grades of stainless steel is available from the manufacturer. The chart also includes information on corrosion resistance.

51. **Metallic Gaskets.** Akron Metallic Gasket Company. Booklet describes the manufacturer's complete line of gaskets, shims and washers, and also includes specifications and information on applications.

52. **Polycarbonate Mill Shapes.** Polymer Corporation of America. Bulletin contains descriptions and suggested applications for polycarbonate rod, plate, disks, and tubing made by the manufacturer.

53. **Electronic Signaling Controller.** Thermo Electric Company, Inc. 4 pp., ill. New instrument catalog describes and lists specifications for new potentiometer type instrument for automatic control of many industrial processes, such as furnaces, ovens, molding machines, and extruders. Two-position (Off-On) control; may be used with any sensing element that generates a dc signal. Features new high-gain control amplifier of exceptional sensitivity and stability.

54. **Applications for Fluorescent products.** Lawter Chemicals, Inc. 12 pp., ill. Brochure describes market potential, color suggestions, formulation hints, and design techniques, for the application of Hi-Viz fluorescent colors and coatings in the fields of industrial safety, aviation, transportation, sales promotion, and packaging.

55. **Fibre Cans and Tubes.** National Fibre Can and Tube Association. 4 pp., ill. Brochure describes in detail the uses to which manufacturers are putting fibre cans and tubes: as packaging, shipping containers and storage elements, for foods such as ready-to-bake biscuits and frozen food, and for goods in industries associated with electronics, metalworking, air conditioning, hardware and textiles, etc.

56. **High Pressure Midget Steam Generator.** Pantex Manufacturing Company. 2 pp., ill., Bulletin SG-200 describes company's Series "R" model electrode-principle steam generator and Steam-Jet cleaner: the first midget-size boiler for high pressure steam up to 250 psi and temperatures up to 405 degrees Fahrenheit. Suitable as a steam generator for such applications as coffee urns (pressure cooking), heating plastic molds and presses, humidifying processes, and (as a steam jet cleaner) for food and drink vending machines, air conditioning filters, etc.

57. **Resistance Heating Units.** Herscott Corporation. 4 pp., ill. Bulletin gives case studies of the results of using Reslec resistance heating units. Of particular interest to metallurgists, it shows how difficult operations can be simplified through the application of heat.

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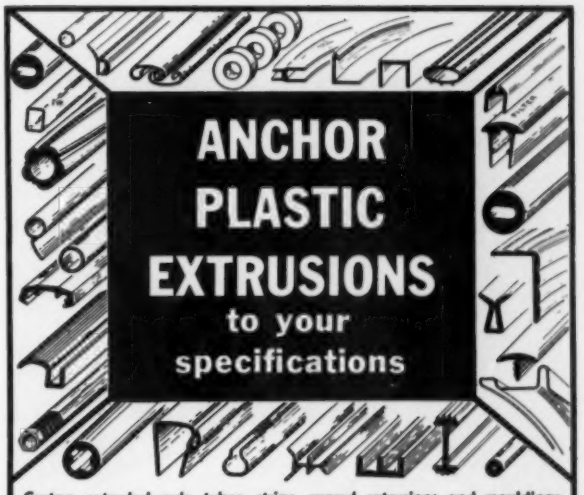

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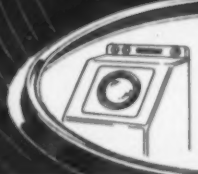

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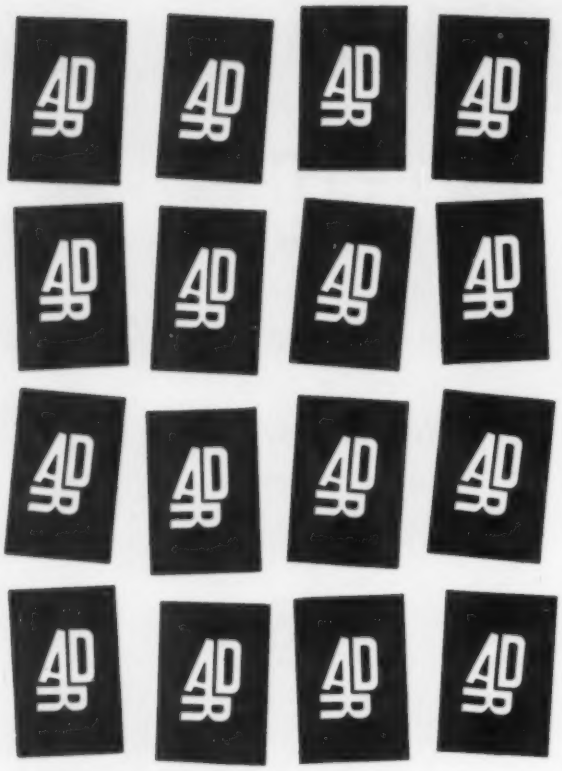

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Through December 6. "British Artist-Craftsmen." Smithsonian Institution traveling exhibition. Harvard Business School, Boston, Mass.

Through December 13. "Fulbright Designers." Smithsonian Institution traveling exhibition. Brooks Memorial Art Gallery, Memphis, Tenn.

October 7-29. "Achievements in the Building Art for Living." Exhibition at the Architectural League of New York.

October 19-23. National Business Show. Office equipment, foreign and domestic. New York Coliseum.

October 19-28. Advanced School for Home Builders. Course on latest developments in home construction. University of Illinois, Urbana-Champaign, Ill.

October 20-24. Twenty-fourth Annual Paint Industries Show. Convention Hall, Atlantic City.

October 26-30. National Conference of the Society of Photographic Scientists and Engineers. Edgewater Beach Hotel, Chicago.

November 2. National Hotel Exposition. New York Coliseum.

November 2. Convocation at Cooper Union on "New Values in Science, Art, and Society."

November 8-10. First Toy and Housewares Production Show. New York Trade Show Building, New York.

November 10-12. Tri-Annual Products of Industry Exhibition. Milwaukee Association of Purchasing Agents. Milwaukee Auditorium, Milwaukee.

November 10-30. "Architectural Photography." Smithsonian Institution traveling exhibition. Pratt Institute, New York.

November 12-13. ASID Fifteenth Annual Fall Conference. "Planning by Design in a World of Product Change." Hotel Statler Hilton, New York City.

November 15-20. Conference in developments in packaging. University of California Center at Lake Arrowhead, Cal.

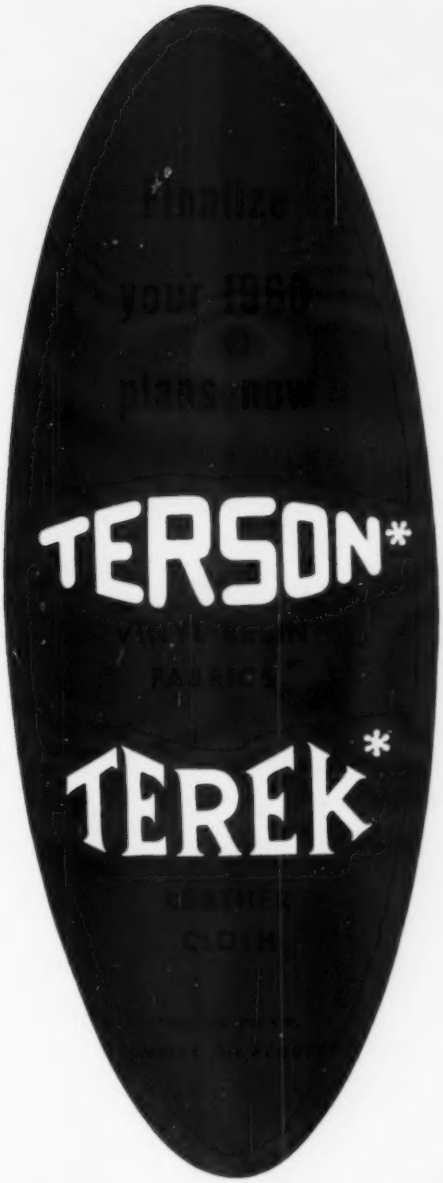
November 16. Western Appliance Technical Conference. Sponsored by the American Institute of Electrical Engineers and the National Subcommittee on Domestic Appliances. Biltmore Hotel, Los Angeles.

November 17-18. "Problems of Machining Space Age Metals." First of 1959-60 seminar series sponsored by the American Society of Tool Engineers. Sheraton Hotel, Philadelphia.

November 17-19. Building Research Institute fall conferences. Topics include: Building research, U. S. and international; metal curtain walls; sandwich panel design; new heating techniques. Shoreham Hotel, Washington, D. C.

November 19. "Plastics in Packaging." Technical Conference of the Society of Plastics Engineers. Claremont Hotel, Berkeley, California.

November 23-25. "Capitalizing on Technology." Conference sponsored by the American Management Association's Research and Development Division. Ambassador Hotel, Los Angeles.



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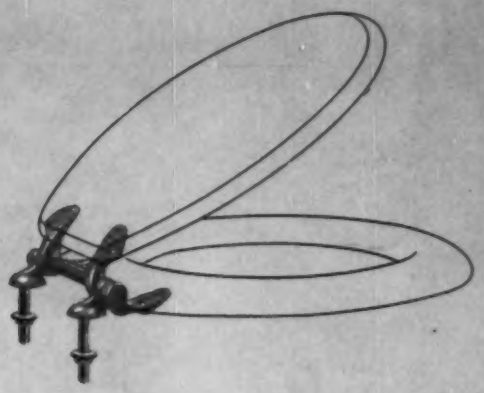

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